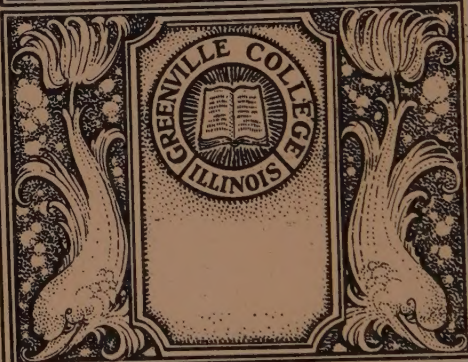


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ANIMAL HEROES
of the GREAT WAR

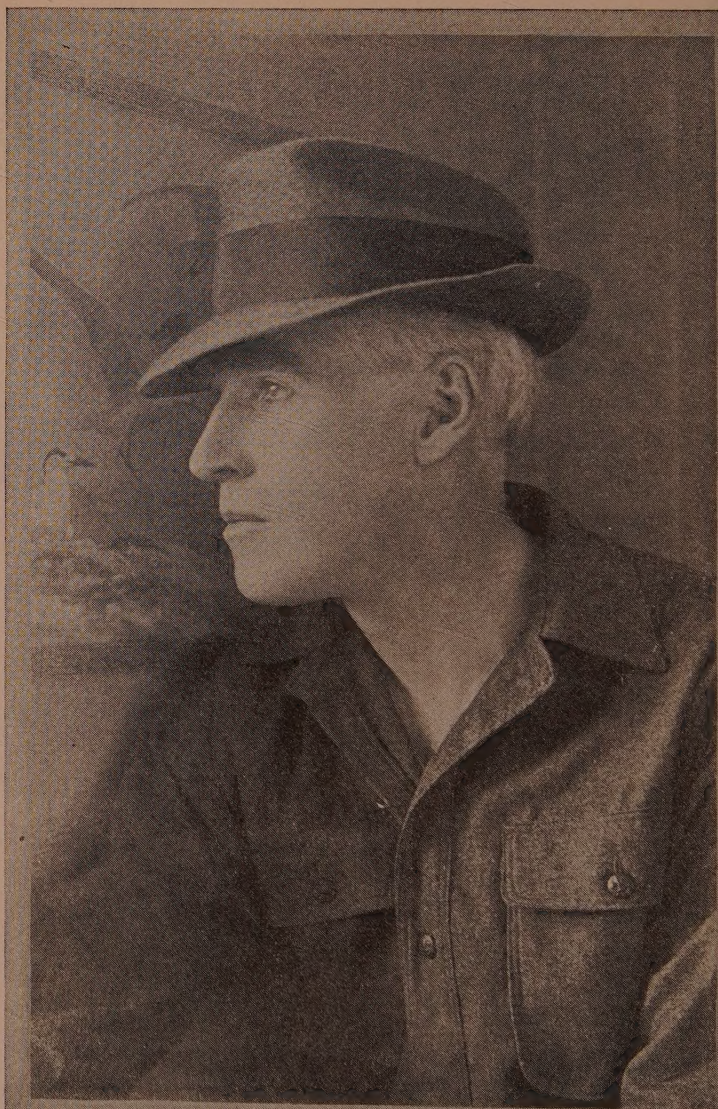
BY ERNEST HAROLD BAYNES

"Wild Bird Guests and How to Entertain Them"

"Polaris, the Story of an Eskimo Dog"

"The Sprite, the Story of a Red Fox"

"Jimmie, the Story of a Black Bear Cub"



ERNEST HAROLD BAYNES. MAY 1, 1868—JANUARY 21, 1925.

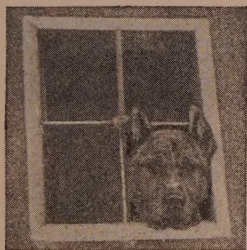
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ANIMAL HEROES
of the GREAT WAR

By ERNEST HAROLD BAYNES

WITH AN ACCOUNT OF THE WRITER

"*THE MAN AND HIS ENEMIES*"

By OWEN WISTER

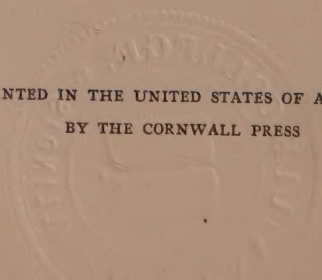


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TO MY FRIEND

MRS. EZRA RIPLEY THAYER

WHO ON HEARING OF THE AUTHOR'S PLAN,
SUPPLIED THAT EAGER SYMPATHY AND QUICK
GENEROSITY WITHOUT WHICH HE COULD NOT
HAVE HOPED TO COLLECT THE MATERIAL
NECESSARY FOR THIS BOOK

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PREFACE

IN 1919 Ernest Harold Baynes, thanks to the sympathetic interest and generosity of his friend Mrs. Ezra Ripley Thayer, was able to realize a long-hoped-for opportunity, and the winter of that year found him bound for Europe on the interesting quest of accumulating data on the work done by animals in helping to win the war. With him he carried many important letters of introduction, and these credentials, with his own winning personality, proved the "open sesame" to many a tight-closed door, brought him into touch with commanding personalities in each country, and secured for him the information he sought. For nine months he traveled,—in England, France, Belgium, Italy, Egypt, and Palestine. The Central Empires he did not visit, and this book contains little regarding the animals who served with the enemy, although their story is doubtless as worthy to be told.

That the material so gathered was not at once worked into book form was due to the fact that even for a man of unceasing activity, such as Mr. Baynes, the day has but a limited number of hours, and the year's complement of days is short enough. It is true he wrote many magazine articles, and lectured widely, notably at the Lowell Institute of Boston in the autumn of 1920; but the great part of his time and strength was claimed by other grave matters, having reference, as always, to animals. And so it came about that he was forced, with regret, to postpone the completion of his project. But he never lost sight of his purpose, and at length the time came when he was able to set himself to the task. Much of the summer and autumn of 1924 he gave to the task, and

when in October he was forced to give up and go to hospital, the book was well on its way to completion. Published as it then was, it would have formed an unique record. But the author was not satisfied. He had planned otherwise, and he wished to have his book as he had planned it, authoritative, complete. There should be a chapter on Allenby's operations in Palestine; the work of the Veterinary and Remount Services must be discussed; the activities of the Humane Societies must have a place; the chapter on Mules, Oxen, and Donkeys must be finished; and the additional information he had collected must be incorporated in the chapter on Pigeons. He hoped he might live to do all this work himself, but as the end drew near he was compelled to allot the final details to the friends whose names appear below, directing them to the books, pamphlets, and passages in his journal that they would require. As for himself, he worked on to the very day before his death.

Mr. Baynes deeply appreciated the generous assistance he had received, here and in Europe, and one day not long before his death he dictated a list of those to whom he wished acknowledgment to be made.

"I wish grateful acknowledgment to be made to the following:—

"To Senator (later President) Warren G. Harding, who wrote me a splendid letter of introduction to General Pershing; to Senator Francis E. Warren, who at Senator Harding's request also gave me a letter to General Pershing; to General Pershing himself, who placed a car at my disposal for eight days, in order that I might visit the battlefields and visit the three armies of occupation on the Rhine; to Major Caldwell, who himself knowing the battlefields thoroughly was able to bring me to the

most interesting points; to *Harper's Magazine*, the prestige of whose name secured courteous reception for me everywhere; to Ambassador Brand Whitlock, who put me in touch with the Belgian War Ministry; to Commandant G. Denuit, who showed me his Military Pigeon Lofts at Antwerp; to Lieutenant Joseph Scheppers, of the Belgian Machine Dog Service, who gave me much valuable information regarding his dogs and their work; to Frederic C. Walcott of New York, who being then in Europe rendered me much valuable assistance; to Sir Arthur Pearson, who gave me a letter to Sir Reginald Brade, K. C. B., Secretary of the War Office, and in other ways did much to facilitate my work with the Army; to Major-General Sir Layton J. Blenkinsop, Director General of the Army Veterinary Service, to whom I am especially indebted for information concerning the British Army Veterinary Service, as well as to Colonel Martin and to Lieutenant-Colonel J. J. Aitkin, D. S. O., an officer who rendered me great assistance by accompanying me to many parts of England in order to secure for me valuable information regarding the Veterinary Service.

"For information concerning the splendid work done by the Royal Society for the Prevention of Cruelty to Animals I am indebted chiefly to Captain Edward G. Fairholme, O. B. E., Chief Secretary of the Society, who gave me a complete set of their publications from the beginning of the War. Lieutenant-Colonel A. H. Osman and his son, Major W. H. Osman, gave me highly interesting information concerning the work of the pigeons, and Lieutenant-Colonel E. H. Richardson, Commandant of the War Dog Training School for the British Army at Lyndhurst, extended every courtesy when I visited the School.

"I am also deeply indebted to the Commanding General of the Italian Army at Padua; to Major-General Sir Arthur Money, Military Governor of Jerusalem; to Mr. G. C. Peake, Major G. R. Powell, Lieutenant-Colonel A. K. Rawlins, D. S. O., of the Bikanir Camel Corps, and to the man at the head of the American Military Stores at Jerusalem, whose name I cannot recall—but it will come to me later."

Here the list breaks off. It was never finished. Those whose names do not appear may rest assured that they were gratefully remembered, for Mr. Baynes never forgot a kindness.

It was Mr. Baynes's desire that Mr. Owen Wister should write the introduction. What a generous response has been made will be seen in the introduction. Mr. Wister has not only written of Harold Baynes in a manner that delights and interests, but he has taken the occasion to add the influence of his intellect and genius to the championing of a cause in which Baynes sacrificed time, money, perhaps life itself.

Acknowledgment is also made to Major-General W. A. Holbrook, U. S. A., for his help, and to Miss Isabel M. Cochrane, Mr. Baynes's Secretary, and to Miss Eleanor Baldwin, who have facilitated the preparation of the book in various ways.

So many sources of information were drawn upon that it is not possible to enumerate them. Military and Official Reports—American, British, French, Italian,—were studied, and magazine articles and pamphlets were read and verified. Among the books referred to, the following should not remain unmentioned: "G. H. Q." by "G. S. Q."; "The War in Africa and the Far East," by H. C. O'Neill; "The Horse and the War," by Captain Sidney Galtrey; "With Botha in South Africa," by

J. P. K. Robinson; "The Brief Record of the Advance of the Egyptian Expeditionary Corps in Palestine," printed by the *Palestine News*; "With the Desert Mounted Corps," by Lieutenant-Colonel the Honorable R. M. P. Preston, R. H. A., D. S. O.; "From the Nile to Aleppo," by Hector Deming and James McBey.

To the publishers of *St. Nicholas* and to Messrs. Scott, Foresman & Company, (both of which firms reserve their rights,) and to *Harper's Magazine*, *The Youth's Companion*, and *The Independent*, thanks are rendered for permission to include in the present volume material that has appeared in their publications.

Harold Baynes put his whole heart into this book for the sake of the dumb creatures whose friend and champion he had always been, of whose well-being he had ever been mindful, and whose services and sacrifices in the Great War he felt should be recorded and brought together within the covers of one volume. With this object he traveled, studied, and wrote, and all but completed his account of the "Animal Heroes of the Great War."

BELLE RADCLIFFE LAVERACK

GEORGE I. PUTNAM

RAYMOND GORGES

“A good sportsman is a man who has developed his mind and his body in the open air, who has a keen eye, a level head, and firm control over both. He is a man who is kind and considerate to all living things, who has good judgment, who can do no wrong, nor suspect evil in others. Who does not crow over his own success, and who has learned to accept defeat with a smiling countenance, and yet does not accept it until the last breath has left his body.”

THE MAN AND HIS ENEMIES

ALL the world over you will meet with worthy persons shaking their heads over an abuse or a need, and declaring that "something ought to be done." Now and again comes a man who does the thing. Such a one was Ernest Harold Baynes, whose final book this is. He did not live to write every word of it, certain passages were dictated in a whisper the day before his death, and certain pages are the work of devoted friends who have rounded out his plan from the notes he left. He had faced the implacable approach of his end through months of pain, turning his thoughts away from this to fill them with the cause he served; and when came the word of his release, those who had known him well felt, apart from their personal loss, the particular blankness which falls upon us at the passing of a life courageous and beneficent.

Since the titles *Reformer* and *Idealist* have in these days sunk low from the level of their once honorable import, to give either of them to Harold Baynes would be dubious praise. He was a spirit militant, who left the world a little better than he found it. He wrote and he lectured. By the strong fibre in his writing, it is easy to imagine his style on the platform. He had a point, he went to it, and he held his audience with matter so substantial and convincing, that his enemies found the safest way to answer him was to head him off before he began. They were organized, he was not; they could stop a town from opening its halls to him. He was valued by Roose-

velt, who wrote a preface to his early book "Wild Bird Guests," and some years later gave him a letter of introduction, with which he crossed the sea to study the services of dogs and mules and messenger pigeons and all animals who had served at the front. This is the book he made as the result, and here is a passage that he whispered when he was dying:

" Able-bodied horses, working year in and year out for the benefit of men, should have their vacations as regularly as their masters. . . . "

It was the sight of some strong horses set free from work and galloping in their joy at the release, which gave this thought to Baynes; and if you read this book of extraordinary interest, you will come upon the whole passage of which I have quoted but a part. I have known many books deriving from the war, but never a one more original than this, or any more absorbing. There are pages about the war mascots, and others about certain dogs and pigeons who did their bit in fashion so heroic and so moving, that one stops in the perusal to dwell upon it, and then, perhaps to read it slowly again.

You might very well have met and talked with Harold Baynes and passed on without giving him further thought. Most of Baynes, the real Baynes, dwelt rather deep within him; did not readily issue on a chance chat; he could tell you quite freely of what he was about, yet not always in a way to incline you to hear more. Citizens are apt to flee from the tale of each other's enthusiasms. I fled at first. Here is a worthy person, I thought; let him be so, but don't let him be so to me.

Breakfast time is not every man's best hour. Baynes and I used to meet over breakfast at the Tavern Club in Boston. His errand was likely to be some lecture, mine

some committee business out at Harvard. He would talk courteously while I tried to look interested, when my single wish was neither to hear a word nor to speak a word but only to eat my eggs in serenity and silence. I hope that he never knew! None of this should I be willing to say, were it not that it did not last; it was not long before I had grown aware that the eye of Baynes could shine like a bayonet point (as he says of the dog Pyram, to whose collar Poincaré at Wesserling fastened a Scout Badge in honor of his gallant deeds) and that within that unaccentuated exterior burned unceasingly the flame of a rare zeal; in the cause he served Harold Baynes could wholly forget and lose himself.

One morning, the aspect of Winter through the window led us to speak of the blizzards we had known; I recalled that great one of March, 1888. It was then that if you wished to telegraph from Boston to New York, you had to cable by way of London, and it was then that three days elapsed before the trains could resume their service between Philadelphia and New York. Baynes remembered this blizzard too. He had set out from a country neighborhood to take a train for New York, where he was at college. The train didn't come and the rest of the suburban passengers didn't go; but he went.

He was then not quite twenty years old. My understanding of him began with this tale of the blizzard at our Tavern Club breakfast. Baynes took on a new value: adventure lived in the heart of that quiet and diffident man.

At the time of the blizzard, he had been a resident of this country for about eight years, coming from England, whither he came at the age of two from Calcutta, where he was born on May 1st, 1868. His school days were

finished at New York, his college days at the college of New York, after which he had a year of reporter's work on *The New York Times*, and then for seven years worked with his father, who had made an invention in photographic modeling. When he was thirty-two he returned to writing, and at this point he may be said to have "struck his gait." The next year he married and soon after went to live at Stoneham in Massachusetts.

The gait of Baynes was a special one, to be seen here and there, but not commonly. Postage stamps are often dear to the heart of boyhood, and birds' eggs, and pistols, and pet turtles, snakes, rabbits, squirrels, and crows, to mention no more; but these early devotions generally evaporate, seldom leading to the man's career. With Baynes one of them did—the woods with their birds and beasts never lost their hold upon him; on the contrary, the hold fastened upon him and lay at the root of his work, his play, and his life's unusual service. Just as a born musician gets on with a piano, and a painter with a brush, Baynes got on with living wild things; they understood him just as children take to child-loving grown-ups. You may have seen photographs of him with some of his pets. These were numerous, various, and not infrequently out of the common; one was a wild boar, another a deer, another the denizen of his wood shed—a weasel who saw a friend in him and would come up in his lap and feed from his hand; and wild skunks confided their babies to him and, when he returned these, took them in their mouths out of his hands. Thus out of the boy's play and the man's pastime and study, grew the definite accomplishment which marks Harold Baynes one of our national benefactors; yet so little spectacular was the man that, even his good work and his books and Roosevelt's warm recognition might have sent him into

the future fairly nameless except to the few, were it not for the renown which his enemies have brought him.

Nineteen hundred was the year when he began to write upon Natural History for newspapers and magazines, and to talk upon the same subject before audiences of those especially interested in it. From these first steps came a syndicate organized by him, through which he wrote an article once a week for seven years—one hundred and forty-five titles, many comprising two, three, four in the series, some eight or nine, thirteen being devoted to foxes. Trout, wasps, porcupine, mink, wolverine, toads, swamps, Indian Summer, alligators' eggs, wild flowers, walks, kindness to animals—the range of his topics is copious in its variety; twenty papers printed these articles. In the middle of the seven years, the *Boston Transcript* printed eleven articles on "Wild Life in the Blue Mountain Forest." No one knew that wild life better than he. Since 1901 (or 1902) he and his wife had been living near the little village of Meriden, New Hampshire on the borders of the Blue Mountain Game Preserve, the 30,000 acres of rugged land owned by Austin Corbin, and into which Baynes could go at any hour of the day or night that he wished. Here he had twelve of his very best years, intimate with his wolves, foxes and deer, surrounded by many four-legged familiars, writing, lecturing, happy in congenial work. In 1907 he helped to found the American Bison Society, and he is to be counted high among those whose intelligent efforts saved our bison from extinction. Eighty-eight different clubs and organizations not only grew familiar with his voice but acted upon his advice and inspiration. It is recorded that he organized very nearly three hundred bird clubs in widely scattered parts of the Country, and in 1911, at Meriden, the earliest bird club

sanctuary owed its beginnings to him. This work exacted not only the various qualities of mind and character which such endeavor naturally requires if it is to be successful, but it also cost him much material self-denial, for he was very far from rich.

His work widened steadily, prospering until he renounced it for the sake of a greater cause. He lectured on a Chautauqua Circuit. He spoke before the Lowell Institute in the Autumn of 1920. He rose to the first rank in his chosen field; the peer of Burroughs and of Muir—indeed of any among those who observe and interpret the wilderness with imagination and accuracy, telling us about untamed creatures, teaching us to befriend and protect them. The next year following upon his move to New Hampshire, appeared with Roosevelt's preface his first book, *Wild Bird Guests*. Perhaps it is the best work on the subject, as it is also called his own best book—or his most ambitious—by those fitted to give an opinion. To Roosevelt's enlightened patriotism, with his love and knowledge of birds and beasts, and his concern for our forests, a nature like that of Baynes made special appeal; he wrote his preface all the more warmly and readily because he had learned to know the author's worth eight years before, in the days when he gave him his powerful aid in saving the American bison. Later, Baynes wrote *Polaris*, *Jimmie*, and *The Sprite*. *Polaris* was a gift from Admiral Peary, an Eskimo puppy of illustrious parents; you may see Jimmie's picture with his infant paw in his human friend's hand; he was an orphan, and wicked, and attractive as the wicked are so regrettably often. The *Sprite* was wicked too, another puppy reared by Baynes, very charming; but he had his bad days. He and Jimmie together cost Baynes many apologies and considerable payment in damages; Jimmie

was a bear who went to sleep in the bed of a neighbor, while the Sprite among other delinquencies ate twenty of other people's turkeys. He was an extremely lovable little fox.

You might suppose that Baynes would hardly have been welcome next-door to you. To live uncertain as to what you may find curled up in your bed, or what of your poultry in the yard may be swallowed by some unit of the adjacent menagerie, does not seem to promise the reasonable portion of stability which one has the right to expect from domestic life at our present stage of civilization. But Baynes was beloved, championed, defended, foxes and all. That was because of the strange something in him we have no good name for, which drew animals and neighbors to him alike. You may call it sympathy, you may call it unselfishness: these words merely come near the mark, none that I can think of hits it. Whatever it should be called, it not only taught man and beast to trust him, it also taught him how to write of animals without mawkishness. The common taint in such writing is sentimentality, the endowing of some creature with qualities above its kind and untrue to its simple character. Tears can thus be drawn from the sensitive and morbid reader; Baynes never used this unwholesome method; not a page of his that I know—and many are moving—sounds the false note. In his zeal for the literal he might even possibly have said that “wicked” as I have used it above was not the right epithet for a little bear and a little fox, who were merely obedient to Nature’s bidding. Baynes was always literal when he spoke or wrote of animals, not because he lacked imagination but because he had it. Beginning with the days in the Stoneham house, where young red-shouldered hawks hopped and squawked and snapping-turtles and

snakes prevailed, his premises teemed with zoologic surprises. He exercised his gift of observant understanding, and with the years it grew, and the name of Baynes grew a name to conjure with when it came to the training of improbable pets. Many were sent to him from afar, Jimmie the orphan was one of these.

This wizard who could charm a weasel into his lap and be the confidant of mamma skunks, came and went at the Tavern Club during the later Meriden years without many of us suspecting that we had a sort of Pied Piper among us, or that from his face a veritable poet looked out. We gradually learned that he had a mission; I fear that few of us did much more than approve it without any excess of eagerness to hear about its details. Certainly we never suspected what he had renounced for its sake. This generally earnest and quiet spoken member, with the gentle voice and the occasional bayonet shine in his eye, had another quality lurking in him undreamed of by us, until one particular night when he acted the part of a lady of rank at the court of Elizabeth. I doubt if the stage manager had ever heard of Mr. Percy Mackaye's bird masque, *Sanctuary*, written for the Dedication of the Bird Sanctuary at Meriden in 1913. In that piece Baynes had taken the rôle of Shy. Our stage manager was apt to read men more often than books; yet again I am by no means sure that he had read humor and the histrionic gift in the recesses of Harold Baynes. At any rate, whatever his reason was, he asked Baynes to put on petticoats of the sixteenth century and be an Elizabethan lady of rank for a little while; and Baynes did it. He made the hit of the show. His delivery of his lines was flawless. And who would ever have thought that? was what we asked each other in our true astonishment when it was over. Certainly Harold

Baynes, we began to discover, held surprises within him; a man could hardly wear less of his heart or any other quality on his coat sleeve than he did.

And yet at that time I do not believe we had become wholly aware of the high place in our regard which Baynes had imperceptibly come to fill. One thing more was necessary to show us this. We may have known at that time about his pilgrimage early in 1919 to the various scenes of the war; how he had gone to England, France, Belgium, Italy, Egypt, and Palestine, to study the services which the dogs, the mules, the horses and the pigeons had rendered the Allies at the front; how he had won the esteem of General Pershing and many another as he pursued his way upon this quaint and charming errand. One of his latest acts was to dictate his thanks to these friends, a dictation never completed. But many had made pilgrimages to the various scenes of the war, many had fought there, some very dear to us had died there; and Lowell lectures were nothing new to us. Baynes's own quiet way of leaving himself out when he talked to you, was, moreover, a help to keep us in ignorance of his remarkable work and his remarkable sacrifice. Even then, in the days of rehearsing and performing the Elizabethan lady of rank, he was in the very midst of his last crusade and his great renunciation. This present book, the harvest from his pilgrimage to the animals, it was his dearest wish to develop and complete, and he had also bought some land whereon to build a house. From this and the assured income of his popular lectures he turned to fight for a cause his conscience rated higher. Surely very few of us realised all this at that time. And then, soon after, came the one thing more. When we learned late in 1924 that Harold Baynes had but a few months to live, he took his place in our hearts:

in that new light we saw the beauty of the man. I recall one night at dinner, not long before his end, that we thought of him and sent him at Meriden our message of remembrance.

The last time he and I had talked together, we spoke of his enemies. It had been in that same Tavern Club. The enemies had outmatched him here and there, had shut him out from being heard at many places during the year; but he thought he saw his sure way to outmatching them the next year. He discussed it all with such lightness and such hope, that to hear him one might have supposed it was costing him nothing. He had helped to save the buffalo, he had caused sanctuaries to be created for our birds, he had untiringly taught the knowledge and the charm of wild things to many people, who looked at the woods with a new eye in consequence. That was accomplished. He did not refer to it, his mind was on what he would accomplish next year. But next year never came. His enemies had the field—many of these his former admirers, whom the step he had felt obliged to take changed at once to the bitterest hostility, denouncing him in public and private as a “traitor,” a “monster of cruelty,” in general using about him the complete vocabulary of violence. What had happened?

Baynes had become aware of a monstrous and dangerous sham. After following up the true facts and the false statements with the same patient and penetrating care he had given to the hundreds of animals he had tamed and befriended all his life, Baynes espoused the cause of medical progress based upon animal experimentation. For the *Woman's Home Companion* he wrote what he had found and what he knew of the falsehoods devised and spread upon this subject by the enemies of

human health masquerading as the friends of mercy. He told of the harm they had done and of the menace that they perpetually were to the people of the United States. There, and later in *The Outlook* more elaborately, he summed up the sweeping and magnificent advance in the art of healing both man and beast since that day when Pasteur first began to wonder about the cause of fermentation—an advance with which the only other advance during the last fifty years is in the least comparable, is our stride in communication all over the world by the automobile, the telephone, the wireless message and the aeroplane. Possibly these inventions have affected existence as fundamentally as what has come from animal experimentation: certainly nothing else has. Baynes knew that at any moment anywhere the enemies of human health masquerading as the friends of mercy in this democracy, can band together and persuade or scare a legislature into stopping medical progress, just as easily as the friends of the first chapter of Genesis can stop the teaching of biology in our schools. It is only the rare legislator, be he Senator or Representative, who has any conviction strong enough to make him miss a chance for the lime light or a vote. So Baynes set himself to work both with his pen and on the platform.

I know of a lady, an extravagant admirer of Mr. Woodrow Wilson, who said she noticed that anybody who attacked him always contracted some disease. We may be perfectly sure, knowing the temperament of some of Baynes's enemies, that these, when they heard of his fatal illness, were quite sure it was a "visitation." As I chanced to become linked in a slight official way with Baynes and his last crusade, before going on I will classify his enemies in three groups:

1. Sincere believers.
2. Tumefied egos.
3. Sympathy perverts.

Other banded fanatics fall into these divisions, and about this particular band the truth has been repeatedly told. It must be told again here; and then it must again be told by someone else; and then it must again be told, ceaselessly, because our liberty is by no means the only blessing which demands perpetual vigilance to keep it safe. Our health needs vigilance just as unsleeping, and its enemies, masquerading as the friends of mercy, never die and never stop. When the old crop is withered, a fresh crop is there to go on with its venomous work of perversion, suppression, and falsification. It is very striking to observe the cumulative effect of fanaticism upon human character; its moral action bears close resemblance to that of morphine. After the habit of morphine or fanaticism has fastened upon its victims, first their value for truth is impaired, and finally they lose the power to tell the truth. The result is, that they degenerate into the use of means to their ends so crooked that the average professional politician would disdain to employ them. Their language and sentiments, also, when they have been addicted to fanaticism for some time, grow violent beyond all measure. Here is a specimen:

"Arch-Fiend:

"I read with horror your article in *The Ladies' Home Journal* on vivisection.

"I hope your mother if she is living will die in the most terrible torture, and if she is dead that her soul will never know rest for having given life to such a vile monster as you is the nightly prayer of

"A dozen women who indited this."

The letter had no date, it bore the post-mark of Los Angeles, none of the twelve signed it; its grammatical incoherence is common in that class of anonymous abuse which rises shapeless like a mist in minds unstrung by feebleness or by thwarted sex. The prominence of spinsters among this and other groups of fanatics is noteworthy. On this occasion, the nightly prayers for the mother of Dr. Keen, the internationally eminent surgeon who wrote the article for *The Ladies' Home Journal*, were evoked by his enumeration of some benefits to human health which have come direct from animal experimentation. I happen to be writing this paragraph on Saturday, June 27, 1925; and on the 13th page of *The New York Times* of today, I chance upon this:

"Two years of total blindness for Benjamin Delobowsky, 28 years old, a clothing worker of 386 East Tenth Street, was ended by one of the strangest operations ever performed, it was announced yesterday by L. J. Frank, Superintendent of Beth Israel Hospital.

"Neurologists and brain surgeons, it was stated, found in an examination which continued over two months, that Delobowsky was suffering from a tumor of the brain, and that his blindness was only one of several ailments from which he had long been a sufferer. They recommended an operation on the brain, always a delicate proceeding, and also, which was more unusual, that it be performed while the patient was under only a local anesthetic, because his condition made it inadvisable to apply a general anesthetic.

"Delobowsky was conscious while he was on the operating table and the surgeons made the incision and isolated the tumor which was removed immediately. Even while the surgeons were beside the patient, Delobowsky cried: 'I can see! I can see!' and before leaving the table, it was said, he recognized objects placed before him."

If Delobowsky has a mother, what is she doing today? Is her heart filled with relief and joy and thanksgiving? or, is she praying that the mothers of all the surgeons, anesthetizers, nurses, and orderlies who assisted her son to regain his sight, may die in the most terrible torture? For it is due entirely and solely to animal experimentation that he is not doomed to go blind to his grave. Until surgery had experimented successfully upon the brains of animals, men with tumors on the brain had been beyond human aid. Through all the centuries of medicine and surgery before animal experimentation, the brain was a region which surgery did not dare to enter. Thousands like Delobowsky have been saved by the sacrifice of a few animals. His particular operation may have been strange and new, but surgery of the brain is no longer quite of yesterday; in the annals of this science rather it is, so to speak, of the day before yesterday; its beginnings date from the eighties, from about the time of Cleveland's first administration. But the use of local anesthesia for such operations as this may truly be said to date from yesterday. Slight superficial operations had been thus conducted for some years, seldom such grave ones as this. On account of the patient's state, the doctors found that to etherize him wholly, as they would have been obliged to do until very recently, might prove fatal. So both his blindness was cured and his life not put in jeopardy, thanks to animal experimentation, to which modern aseptic surgery is also directly due. Before antiseptic surgery, its forerunner, was established by Lister's developments from Pasteur's discoveries, not the brain alone, but many another region of the body, was forbidden ground to the surgeon; if any one was overtaken by acute appendicitis, his chances were small. This had been true through all the centuries until

about thirty years ago. How many die now of appendicitis? And today it is the heart. More forbidden if possible and longer forbidden than the brain, this organ was believed to be the very seat of life, absolutely beyond the hope of successful operation. It is so no more; today, wounds in the heart are successfully sutured. This triumph has come from animal experimentation, to which also medicine owes the recent marvelous strides it has taken. Nothing happened for some sixty years after the first great step in 1798. In that year Jenner struck upon a tremendous instance, but not upon the principles which underlay it; the principle remained for Pasteur first to divine, next to discover, then to demonstrate, and at last after many battles to establish: that certain diseases pass from one victim to the next by means of living breeding specks which only the microscope reveals.

It might be supposed that after Jenner's discovery, which tamed a savage pestilence, changing smallpox from an ever present and devastating plague into an occasional and inconsiderable incident—it might be supposed that after this, the protective virtue of vaccination would be a fact accepted wherever it was practised. It might be supposed that Americans, after the experience of our army, would no more doubt its value than they doubt the value of bread and butter. It might be supposed that a look at the figures recording death by smallpox in countries which vaccinate and in those which do not vaccinate, would leave no doubt in any mind. In Boston during the year 1752, one person in every three had smallpox; in India, where there is no vaccination, nearly six hundred and forty-eight thousand deaths were reported between 1918 and 1922; in Arabia, where there is no vaccination, from four to six in every eight children

die of smallpox every year. In the Great War among our four million vaccinated troops, there were 778 cases and of these 8 deaths; in the Philippines before we introduced vaccination, forty thousand deaths occurred every year; by 1916 there were 239; two years later, among our five thousand vaccinated troops who were in daily contact with this pestilence among the natives, there was just one case. In the face of this, a large sign belonging to the enemies of human health in New York City today, announces that "Vaccination is Superstition." These enemies do not live only in New York, they pervade our country, and sometimes they prevail. In California they did so in 1911, repealing the law compelling vaccination, since when the death rate of smallpox has steadily mounted. The same condition is to be seen in four other states. The agitators never die and never stop. In Pennsylvania not long since, they narrowly missed delivering the State as a prey to smallpox. The usual appeal of the agitators is made in the name of liberty: shall a free-born American be compelled to have his arm scratched and poison put into it—poison which is known to have fatal results? Yes, there have been some fatal results; it is also well known that husbands now and then kill their wives. To stop this shall we abolish marriage? And as for liberty, is a man living in a city street at liberty to set his house on fire? Is he at liberty to jump up in church and shout the preacher down? A man with the smallpox is as great a danger to his unvaccinated neighbor as a house on fire is to the next house, and a much graver nuisance than if he interrupted divine service, since putting him out of church cures this at once.

To tell this old, old story over and over again, to keep repeating that vaccination has tamed a savage pestilence,

is a wearisome necessity; and it will be necessary as long as the enemies of human health masquerading as the friends of mercy, or of liberty, or of any other thing, continue to announce to a public which has not studied the facts that vaccination is superstition, and continue to urge ignorant or indifferent politicians to change the law: for the power to legislate involves the power to destroy; and to repeal a law compelling vaccination, threatens death to many as surely as twice two is four. Equally destructive is it to forbid by law the animal experimentation which made possible such a cure as Delobowsky's and which has opened so wide a door to the saving of life and the relief of pain. For a long while I have known something about these fanatics—for some forty years—and their characteristics and methods are by no means a new thing to me. That letter which the twelve anonymous women posted to Dr. Keen from Los Angeles, praying that his mother might die in torture, does not surprise me at all. I have seen a number somewhat like it, I have even received a few, less violent but equally hostile, because my name has been associated with the Friends of Medical Progress, the society which Harold Baynes touched into active life. But to anyone not familiar with the habits of the foes of medical progress, it must certainly seem odd that people who wish to save guinea pigs from experiments should wish Dr. Keen's mother to die in terrible torture or, if already dead, to suffer unrest forever. To be so sensitive about animals and so callous about a human being—does not this discrepancy, this disproportion of feeling in those twelve women, lead one to wonder just what sort of people they could have been, what their daily lives were like, and above all what the insides of their heads and hearts were like? As I have observed several such people pretty

closely, I shall describe them before giving instances of what they do.

Any experienced doctor will recognize the three types into which I divided this group of fanatics. First comes the sincere believer. This class is not sick; saving in one respect, it is normal and fairly analogous to the conscientious objector, who will not go to war because his religion teaches him that God has forbidden war. Theodore Roosevelt admitted that such people were often honest people, but he characterized them as incomplete in their citizenship: a man, he said, who accepted all benefits of citizenship but will not fight to protect his country, falls short by just so much of his full duty. To the sincere believer all life is equally sacred, whether of man or bird or beast; for a man to rob a beast of its life is a crime which nothing justifies, not even the discovery of some great remedy for human illness. To be consistent, the sincere believer must eat no food that has cost any animal its life, must condemn all sport with rod or gun, must set no trap or poison for rat and mouse and must wear no fur. Perhaps some go as far as this. In placing animal life so high, they have a twist in their judgment, but nothing else ails them.

Very different is the tumefied ego. Not necessarily sick at the beginning, he may in time let his peculiarity go so far as to lose all control of it and become first an anxiety to his family, next a household vampire, and at length abnormal enough to need a doctor and trained nurses, and even in some cases an insane asylum. The matter with him is, that he craves in some way to become conspicuous, to make a stir. He has not gift enough to do it in any of the regular ways. He can not be great in his profession or business, he has no talent to write books, or paint pictures, or compose music which people

will speak of. He starves for notice. Then the chance comes to him—or her: a new religion, a war, Bolshevism—anything will do, provided you can get into prison or into print by differing from whatever happens to be the prevailing opinion in your community. The limelight is the point, not the new religion, or universal peace, or the welfare of Russia, any more than it is the welfare of the guinea pig with the group I am discussing, or the protection of liberty with those who oppose compulsory vaccination. At the bottom of the whole agitation is neither the guinea pig nor liberty, but just the tumefied ego. And when by self-indulgence this swollen self has got so large that it hides everybody and everything from itself by itself, then that stage of hysteria has been reached which requires medical treatment. A recent health officer of Pennsylvania became aware that a deputation of the enemies of health was about to arrive at the State Capital, there to make the usual protests and the usual speeches before the legislature, demanding a law to stop the usual crimes perpetrated by the doctors against liberty and dumb animals. Such a deputation was apt to come every year, never yet successful in getting its law passed, but always successful in getting head lines and stories in the morning papers. He was tired of it. By experience he knew that these protesting groups were composed chiefly of tumefied egos, with but a small number of sincere believers. He summoned to his office the reporters, with whom he was on excellent terms, and asked them to be perfectly silent about the visit of the deputation, not to give it a single line. This was done. They came, made their speeches, went away—and never came again. It was their last visit during that health officer's term of office. They had opened the morning papers and found

themselves missing. Another pretty case of the tumefied ego happened in Philadelphia when we entered the war in 1917. The pacifists arranged a mass meeting in Independence Square at night. There were to be demonstrations, bonfires, many things. Word was sent to certain wise policemen. These attended the meeting in a most gentle spirit. They said: "Now girls, have a good time, and you'll please us all." They made no arrests, they were chatty and amiable, and the pacifists went home, bitterly disappointed. None had been put in jail, all had missed the limelight.

For the third type of foes to health, the sympathy pervert, the doctors have a name. This type is also a case of well known abnormality: zoophile psychosis is what they call it. The sympathy pervert is one of those whose make-up in nerves or in brain causes them to shrink and suffer, not alone at the sight of animal suffering, but even at the mere thought of it, while human pain leaves them quite unmoved. It is more commonly to be seen in women than in men. It is not always, though it is for the most part, the childless woman in whom sympathy is thus perverted. At the outbreak of the war in 1914, some friends of mine were escaping from Germany to England. With them in the railway compartment was a lady with a little daughter and two pet lap-dogs. On learning that in England these dogs would be quarantined, she put the child in the care of two complete strangers whose acquaintance she had made on the train, and remained behind in Holland with the dogs, saying by way of explanation: "They would die without me." Now the complement to this extravagance of sympathy for animals—no sympathy for human suffering—is always present, but not so easily to be observed, unless you are an expert and know the means to make it reveal itself.

It occurs in varying degrees, and when it has been developed by controversy over animal experimentation, it can reach the dimensions of monstrosity. Twenty thousand beings die annually from snake bites in India; about the search for an antidote which was being conducted, a lady wrote:

"Nothing seems to me less defensible than these experiments on the poison of snake bites upon animals since it is the one case in which they could be observed with so much satisfaction and certainty upon man."

A Senator of the United States wrote upon another occasion:

"It would be much better to dissect men alive occasionally for the general welfare because the attendant phenomena and demonstration of the victims being of our own particular form of animal would be far more valuable. . ."

Let one more specimen suffice; this is a lady writing about a patient whose life was saved through treatment derived from animal experimentation:

"My sympathy for the parents of that young man . . . would have been deep, but not so keen, as for a mother dog who saw her puppy tortured to death on the dissecting table . . . even if you did save a man's life, was it worth while?"

The last specimen yields as much upon analysis as any which might be cited. Within its compass, all the indications characteristic of this particular form of fanatic fever appear. Distortion of facts has reached the spectacular stage; through probably repeated excesses in inaccuracy, the writer has lost the power of careful statement, a creeping paralysis has made significant inroads upon her veracity, she is in danger of becoming unable to tell the truth on any subject which may touch

the already inflamed area of her emotions; perverted sympathy is also well defined—she does not think the life of a man worth the life of a dog. Among persons who have reached this stage of excitement, a tendency to create harrowing images is common; and that these fancies bear no relation whatever to fact, does not prevent their using them as foundations for their arguments and accusations. The image here of the mother dog seeing her puppy tortured to death on the dissecting table is a good example. The lady treats this as a reality: when you experiment on a dog, you bring its mother in to watch. Merely to state the notion is enough to lay bare its preposterous absurdity.

One of the pioneers in the movement against animal experimentation was an old friend of my family—Miss Frances Power Cobbe. I met her first when I was ten, in 1870, and from that time until my last visit to her in 1896, I had many chances to know her loyal, generous hearted nature: she was truly a fine person, of many interests, much cultivation, and abundant gaiety. But I also had opportunity to see the unhappy effect upon her character produced by the years of controversy in which she grew more and more involved and embittered. She became irascible, obsessed, and her intolerance of opinions differing from her own increased perceptibly. I was able, fortunately, to keep off the burning subject with her during the later years, when I had become a man and had been led to look into the other side of the question. She never knew that I had come to disagree with her; she assumed that I still took her view as I had taken it in earlier days, simply because I liked and admired her, and without any knowledge beyond what I had from her I supposed that of course she must be right. Had she discovered my change of mind, it would have ended our

long friendship—and probably with a formidable explosion: she was quite a formidable person.

When she began her agitation, I think it likely that she had good grounds for it. Some experiments had been conducted on the continent of Europe during the years before the discovery of ether, and certain of these had been repeated in England. There can be no doubt at all that these performances in the name of science subjected animals to torture, and the news of them deeply stirred many humane people who organized a vigorous opposition. The impetus of this carried them on beyond the period when there was justification for it. Ether had come in, and chloroform, and other agents for deadening pain, suffering was eliminated, and a new world of pain-saving and life-saving had begun to dawn. But to this Miss Cobbe and her party resolutely shut their eyes and ears. They went further. In the louder and louder outcry that they raised in their excitement, they began to assert that ether was not used, that no pain-deadener was used, and that nothing of value had been discovered by the experiments. Truth lost its significance for them. They invented facts, they made assertions, which were repeatedly disproved and as repeatedly reasserted in their publications. I fear that my friend Miss Cobbe can not be acquitted of such practice. Her attention was called to the inaccuracy of some of her printed assertions, and a revision of these followed, only to be still later followed by a reprinting of them in a later publication. I do not see how she could have helped knowing of this; it occurred several years before her death. She, with her associates, was responsible for the laws which about 1881 drove Lister out of England to carry on his researches at Toulouse. There he was let alone—there his experiments opened the door to antiseptic surgery

which led to modern aseptic surgery, and you and I today, and our wives and children, and all dear to us, may recover from wounds, injuries, and diseases from which our grandfathers had to die. Today also the most vital parts within our bodies may be deadened to pain and operated upon while we remain conscious and the evil is removed, just as in the case of Delobowski and his brain tumor.

Since the day when Miss Cobbe began her work of agitation, a half century has passed. During those fifty years, no advance whatever in our knowledge—I repeat, none whatever—has exceeded in its marvelous and enduring help to mankind and to domestic animals the advance made by surgery and by medicine. For about twenty-three hundred years, surgery and medicine (with the single great exception of smallpox in 1798) were virtually at a standstill. Young Doctor Oliver Wendell Holmes in Boston in 1840 did not know much more than Doctor Hippocrates in Athens in the year 460 before Christ. By 1840, gleams of conjecture had begun to shine out here and there, but these threw no steady beam of light upon the art of healing; the list of diseases without hope did not grow shorter; the wounds and fractures from which men had to die were not diminished; lockjaw, a bullet in the bowels, meant a few days at most, and then the grave. In our Civil War, blood poisoning had a mortality of 97 percent. Abruptly, after twenty-three hundred years, a change began. Anthrax in France ceased to be a scourge of sheep; it fell away enough to have paid in healthy sheep France's indemnity to Germany in 1870. In the same country, chickens ceased to be destroyed in thousands by the poultry cholera. Presently the bite of a mad dog could be rendered harmless. Soon after, the operation for appendicitis, unheard of

during twenty-three centuries, became a commonplace. Other life saving surgery came crowding upon this, tumors, growths, strangled intestines, all fatal since Hippocrates, all were blotted from the terrible list of diseases without hope. Hope for tuberculosis was found, safety from diphtheria, safety from typhoid fever, from lockjaw, from cerebro-spinal meningitis, help in syphilis, help in diabetes, and very lately, the promise of cure for scarlet fever, and immunity; still more recently, the promise of cure for measles. I have not named them all, I shall not try to name them all—these diseases without hope for twenty-three centuries that have been struck from the terrible list in the last fifty years, these wounds that once led to death and which now are healed daily.

Suppose that all this was entirely new to you, that you were hearing about it for the first time; that you learned as a perfectly fresh piece of knowledge that from 460 before Christ to about the middle of the 19th century, no advance (but in smallpox) was made in the art of healing; but that since about 1880 until the present moment, all these astonishing discoveries had flashed upon the world. I think you would ask, What is at the bottom of it? Why didn't it happen sooner? You would be curious to know the cause of such a tremendous transformation.

Suppose, again, that you were shown officially authentic records like this:

1898 Fifteen hundred and eighty deaths from typhoid fever in the American Army of 107,973 men.

1915 One case of typhoid fever in 20,000 men.

Would you not be struck by the difference and interested to learn what steps had been taken in the American Army between 1898 and 1915 to produce such a differ-

ence? The soldiers were in camp both times, chiefly at Tampa in the first instance, and at San Antonio in the second. Was geography the cause of it?

And then, suppose that you heard of something else for the first time; you heard that a man named Pasteur had made some experiments in France, and a man named Lister had made others; that a new treatment of wounds and diseases had followed directly from these experiments, and that differences in death rate, such as is disclosed by the typhoid fever record, had been contemporaneous with this new treatment. I could quote you many other records of death rates in other diseases from hospital reports and army reports, and they would all disclose the same sort of remarkable diminution between one given date and another, and in every case the new treatment—in lockjaw, or diphtheria, or meningitis, or whatever,—would have been introduced during the interval. Without knowing more than this about it, without having mastered the steps and technical details which led to the new treatment, the various shaped specks invisible without a microscope that are present in the blood or the pus where there is one of these infectious diseases, and how quickly they multiply, and how they can be dealt with by a succession of wonderful processes in a laboratory until they are modified and transmuted into a cure instead of a curse—without learning any of this technical knowledge, would you not be inclined to connect the new treatment with the disappearance or mitigation of diseases which never through twenty-three centuries had been mitigated or had disappeared before?

There is a disease known as puerperal fever. It attacks mothers after childbirth. Epidemics of it occurred in lying-in hospitals, very fatal. To an English doctor named White in the 18th century a suspicion came that

this disease was spread by those who attended the confinements. A German later announced this without mention of White. The same notion was adopted by Dr. Holmes in 1843. He was convinced that this deadly fever was by some mysterious means brought by the doctor and the nurse from one mother to another and that here lay the true secret of the epidemics. All respectable doctors in Boston thought little of this notion. Dr. Holmes, as we know, preferred writing books to practicing medicine, and became in time the Autocrat of the Breakfast Table; but he also lived to see his notion verified in 1879, rather dramatically. French doctors looked just as askance upon Pasteur and his experiments as they had looked upon the new notions of Holmes, and one of them, Hervieux, during a conclave in Paris said that he was terribly afraid he would die before he saw the little speck that Pasteur asked them to believe lay hidden at the heart of puerperal fever. Pasteur made his way to the blackboard and drew some dotted shapes. "There it is," he said. The name they have given it is streptococcus. Here is what streptococcus used to do in the hospitals before Pasteur and Lister succeeded in making the world know that when a child is being born, the hands and instruments employed must be washed with chemicals that kill the little speck:

In France to 1864, one death in every 28 confinements.

At the Clinique between 1833 and 1864, sometimes 20 per cent of mothers died.

At the St. Antoine in 1869, 65 per cent of all mothers were infected.

In Prussia between 1810 and 1875, 363,624 women died of puerperal fever.

In the New York Maternity Hospital in 1883, 7.17 per cent died.

In the New York Lying-In Hospital in 1908, the percentage of death in 60,000 confinements was less than one-half of one per cent.

This was after Pasteur and Lister had prevailed, and aseptic surgery was established. I will not quote the French and German reports; they merely duplicate the same astonishing victory over puerperal fever which the 1908 figures in New York reveal.

Every victory that I have named—over puerperal fever, typhoid fever, diphtheria, lockjaw, meningitis—all these and more that I have not named, has been won by surgeons and doctors in the last fifty years, not a single one during the preceding twenty-three hundred years; and these victories have followed without a solitary exception upon the application of the methods of Pasteur and Lister based upon animal experimentation. And, to take one instance from the animal world in our own country, by 1921, the experiments upon 17 hogs had led to a treatment which reduced the loss from hog cholera from seventy-five million dollars to about twenty-eight million.

Does it not seem pretty clear that the killing of the little specks through means discovered through animal experimentation, has something to do with this extraordinary change that has come into the world? By quoting more dates, more tables, more percentages, I could readily pile up my examples; but it seems to me that these I have given must be sufficiently overwhelming proof to any average mind. Unfortunately there is a collection of minds not average, the emotional descendants of Miss Cobbe and her associates. These, if they had their way, would have kept the list of diseases without hope

from ever being shortened; would pass laws now, and would continue to try to have laws passed, which would forbid the art of healing from ever striking another name from that awful list; would stop our striving to find a cure for such things as infantile paralysis and cancer. To describe these persons as the Society for the Promotion of Pestilence would not be unjust.

We must not at all forget the good which the protectors of animals have done. They have by their humane and enlightened work made the world far more merciful to our dumb beasts than it used to be, they have taught all decent folk to feel that horses and dogs and cats have their rights, and they have made those who would wilfully maltreat them afraid of the law. It is not at all of these benefactors that I am speaking, nor of those who, moved by the same merciful impulse, created a general sentiment which prevented the futile and senseless excesses in animal experimentation that undoubtedly existed at one time and had bid fair to become the practice among brutal medical students. The check on this was sane. But what about the would-be check upon animal experimentation in competent hands, promising new protection to man and beast, which is governed by careful and merciful rules, and which almost every year strikes another dreaded item from the list of diseases without hope? Shall this be checked? Would that not be excess? Diphtheria in New York in 1894 killed 158 in every hundred thousand, in 1905 it killed 38; in Boston it killed 180 in every hundred thousand in 1894, in 1905 it killed 22. The new treatment had come in by 1905. In Boston, from 60 to 80 percent of children with meningitis died before the new treatment, which has reduced the percentage to 19 percent. The Society for the Promotion of Pestilence bitterly denounced and opposed the

experiments on guinea pigs and rabbits which curbed the ferocity of diphtheria and meningitis.

What do these people do, these tumefied egos and sympathy perverts? What do they say? To whom do they say it? We have seen that twelve of them prayed nightly that Dr. Keen's mother might suffer terrible torture because he had spoken of certain benefits due to animal experimentation. That is but a single specimen, one straw to show their state of mind and morals; and I am wondering if the reader will be able to believe what I am obliged to tell him in further illustration. It is a picture of one side of human nature as melancholy and as repellant as the heroism of some of the doctors is inspiring and glorious.

Certain parts of the world—and particularly New Orleans and Cuba in our part of the world—were ravaged by a disease known as yellow fever, or the black vomit. Year after year it killed its hundreds or its thousands. It was a ghastly illness, a ghastly death to die. Perhaps confluent smallpox, or lockjaw, or hydrophobia, but not many others, equal or surpass it in horror. At the beginning you are languid, chilly, your head aches, your muscles pain you. Congestion next flushes your face, reddens your lips and nostrils and changes your tongue to scarlet and suffuses your eyes. Your temperature rises—it can go to 110—you can eat nothing and you are thirsty and vomit, hideously in the end, and delirium and convulsions seize you. Some other symptoms I omit. This pestilence seemed new in 1647. It was connected with the arrival of ships in the Barbados. Then it stalked over the world—St. Kitts, Jamaica, Peru, Africa, Spain, Portugal. Five thousand died of it in the Summer of 1821 at Barcelona; six thousand in a few weeks at Lisbon in 1857; just 30 less

than eight thousand in New Orleans in 1853; in Rio, in 1898, ninety-four in every hundred cases died; Rio in 13 years lost twenty-eight thousand inhabitants by it. Thus this pestilence stalked at large over the world, free. After January, 1902, it wholly ceased to originate in Havana. Today it is in prison, hand-cuffed, chained, harmless, wherever they take preventive measures. Where they do not, it continues its sport with vomit and convulsions. In Panama, it stood an ever present spectre—as you will recall—forbidding all comers to dig the canal. Why is the canal now built? Why after January, 1902 did Yellow Fever cease to haunt Havana?

In 1881, Dr. Charles Finlay of that town began to believe that a mosquito called the *Stegomyia fasciata*, black, with silvery markings on the thorax, carried the disease. This suggestion remained stationary for nineteen years; no one carried it actively forward until after our war with Spain which threw Cuba under our management for a while. This was in 1898. Two years after, an American commission of doctors was appointed to find out, if this were possible, what could be done to cleanse Havana of its terrible scourge. These physicians were Reed, Carroll, Agramonte, and Lazear. Experimentation with animals could not in this instance be satisfactory. Volunteers were called for. Twelve marines offered themselves instantly. Could it really be the mosquito? They set to work. They exposed themselves to the disease in every direct way. Screening the beds from access to the mosquito, they slept in the foul unwashed sheets where men had died of the black vomit. They rubbed this upon their persons, into their eyes. No one took the fever. Then it must be the mosquito. But this was still a guess; it must become certainty. Somebody must be bitten by mosquitoes which had already bitten yellow fever vic-

tims. This last step they took. They offered their bodies to death in hopes that through this the world might be made safer for living men. Dr. Carroll did this, and others followed him. He took the disease but recovered; some of the others, Dr. Lazear among them, died of the black vomit. By their supreme offering these experimenters had proved forever that it was in the bite of the black-bodied, silver-striped *Stegomyia fasciata* that the secret of yellow fever lay. This was accomplished before the year was out. Early in the new year, 1901, they set about their precautions—destruction of stagnant breeding waters, and much else. After January, 1902, yellow fever ceased to originate in Havana; when it came, it came in ships. In 1907 there was one death from it, and in April, 1910, the republic of Cuba was declared to be entirely free from the disease.

Here is what Dr. Reed wrote his wife from Cuba at 11:50 P. M., December 31, 1900, when the survivors of the experiment stood with their quest ended, triumphant in sacrifice, on the threshold of ridding Havana of the deadly carrier of the black vomit:

"Only ten minutes of the old century remain . . . It has been permitted to me and my assistants to lift the impenetrable veil that has surrounded the causation of this most wonderful, dreadful pest of humanity and to put it on a rational and scientific basis. I thank God that this has been accomplished during the latter days of the old century. May its cure be wrought out in the early days of the new! The prayer that has been mine for twenty years, that I might be permitted in some way or at some time to do something to alleviate human suffering, has been granted!"

What said the Society for the Promotion of Pestilence when they heard this? What words had they for the

death of Dr. Lazear? In the New York Herald for August 1, 1909, one of them wrote:

"Science is based on such firm foundations, indeed, that it can at a moment's notice be tumbled down and become a wrecked mass by a mosquito! Not only this, but these lifelong vivisectors could not even prolong their own lives. Undone by a mosquito! I shall always have unbounded admiration for that clever insect."

This was a woman, a spiritual sister of the twelve who prayed for the torture of Dr. Keen's Mother. She and her kind had clamored that men, not guinea pigs, be used for experiment, and when the wish came true, this was the discharge from her brain, this mess putrescent with incoherence, mendacity, and malignity.

To show such people to themselves in all their hideous insanity, cannot be done: reason rolls off their backs; but they can be shown to others as a warning. If one of them says to you that men should be used instead of animals, ask about Dr. Lazear. And ask what member of the Society for the Promotion of Pestilence has ever gone to a laboratory and offered his or her body for experiment. Ask also what disease they have ever cured, or what system for the cure of disease has ever issued from their noisy lips and pamphlets. When they tell you that the lips of animals have been sewed shut so that their screams under experiment shall not be heard, inquire if the animals were silent while their lips were being pierced with needle and wire. When they tell you that pain is never deadened for the victims, that they lie on the table not under ether or gas or anything, but wholly alive to every cut of the knife, ask them where they saw this happen, in what laboratory they were the witness of such abominations. And then, if they answer that no witnesses are allowed to be present, that the hor-

rors go on behind locked doors, ask them what door they ever tried to enter and found locked. Tell them that on February 21, 1912, for instance, their society in Philadelphia was formally invited by the Dean of the Medical School of the University of Pennsylvania to come and see the Laboratories and the animal house, and that not a member of it ever came. Of course they never came! They would have seen the animals under an anesthetic as ordinary visitors see them daily. They would have come face to face with the truth. The truth is the very last thing they wish to see. Ask them about Dr. Crile's book on surgical shock, from which they quoted in their leaflet entitled "The Anesthetic Delusion." Or rather, do not ask them. Read their leaflet, or read their statement in the *Public Ledger* of December 19, 1913, and compare what they represent Dr. Crile as saying with what he says himself. In their story of his experiments they omit the forty sentences in which he mentions his use of anesthetics and assert that he "repeatedly describes experiments followed by the word 'No anesthesia'." On page 14 of his book Dr. Crile says, "In all cases the animals were anesthetized, usually by the use of ether, occasionally by chloroform, either alone or without ether. In a few cases curare and morphine were used."

The tortures which these fanatics continually assert are inflicted upon conscious animals would render those who inflict them at once liable to imprisonment. Ask them why they never prosecute the torturers. If they tell you that they do, follow that up yourself and you will reach the same mendacity as in the case of Dr. Crile's experiments.

Dr. Reed did not stop yellow fever, they will say. Ask them to name the spots where it persists. Very

likely they will name places in Mexico and in South America. If they do, they deliver themselves into your hands, for in those places Dr. Reed's precautions have never yet been taken. Again they deliver themselves when they assert that modern sanitation alone has diminished disease, for this also is based on animal experimentation.

Certain eminent doctors, they will tell you, have condemned animal experimentation as utterly barren of benefit; and they will name these doctors. They will quote what Dr. Henry J. Bigelow said before he changed his mind, they often quote it and publish it, but do they ever publish what he said in 1900, on page 371 in a volume of his collected addresses?—"A painless experiment on an animal is unobjectionable." They also quote Sir Frederick Treves, dislocating some of his words from the whole of his meaning. He did not permit this trick to pass unnoticed, but what he wrote about it in the London Times of April 18, 1902, they carefully suppress:

"Those who are familiar with the controversial methods of the antivivisection party will not be surprised that certain of my remarks have been cunningly isolated from the context, and have been used . . . to condemn all vivisection experiments as useless . . . No one is more keenly aware than I am of the great benefits conferred to suffering humanity by certain researches carried out by means of vivisection."

But still they misquote and pervert his words, as they perverted Baynes's, as they will mine, in the hope that innocent readers will not follow them up. What others do they quote? Sir Richard Owen, who died in 1831; Wilkinson born 110 years ago, editor of Swedenborg, author of "Isis and Osiris in the Book of Respiration"; Dr. Arabelle Keneally, novelist, author of

"Molly and her Man of War"; Dr. Gordon-Stables, novelist, author of "In the Dashing Days of Old." On such masters of medicine do they rely for their obstruction to the cure of lockjaw, meningitis, diphtheria, typhoid fever. And they will still tell you, as if it were going on today, of the horrible experiments of Magendie, which *were* 75 years ago. They trust you will take their word for it, and not follow them up. But do it, reader, do it!

And yet when their turn comes, and the steps of Death turn in their direction, they run for safety to any shelter where they hope to find it. I know of a lady who was glad to be cut open and have what threatened her removed by an operation which before modern surgery used to kill two out of three. She owed her life to animal experimentation, which she continued to denounce. She remained in the ranks of those who daily in the face of truth repeat that anesthetics are not used, that the doors are locked on the experiments and that these have done no good.

Near the surface of these self-blinded minds, fury perpetually lives, and it breaks through in words like this:

"May God so deal with every fiend incarnate who has thus tortured defenseless creatures"—

or,

"Vivisection, founded on cruelty, supported by falsehood, and practised for selfish ends"—

or,

"The vivisector is less valuable to the world than the animals he destroys."

In the Rockefeller Institute, one of the laboratories most famous and therefore most hated by the Society for

the Promotion of Pestilence, Flexner, through experiments on 25 monkeys and 100 guinea pigs (many of these cured by the discovery they caused) found the remedy for cerebro-spinal meningitis. This used to kill from 75 to 90 in every hundred patients; it now kills about 25. The Society's organ, for January, 1909, records that the news of a gift of money to the Institute "fanned into fury the opposition of the women to experiments on living animals, no matter how great the anticipated benefit."

In 1914, a million was given for a similar Laboratory in New Jersey. These Ladies and their friends persuaded the Governor of New Jersey to veto the bill permitting the work.

In 1917, the War Council authorized 100,000 dollars to be used by the Red Cross in animal experimentation. The war confronted surgery with a series of problems new and ghastly. The animals to be used in experiments for saving the stricken soldiers were chiefly guinea pigs, rabbits and white rats. The fury of the ladies burst out. They brought a suit to prevent the Red Cross from this use of the money. In their Bill of Complaint they declared that although animal experimentation had been used for many years, "nothing has been discovered by it that is at all beneficial to the human race."

The next time you hear that someone has appendicitis, or a tumor in the brain, or a knot in the intestines, stop the operation: its safety comes from the use of animals. The next time your friend is to be protected from the dangers of lockjaw, hydrophobia, meningitis, diphtheria, typhoid fever, forbid the serum: animals provided it. Forbid all serum, forbid all preventive medicine, forbid aseptic surgery, forbid local anesthesia, close the open doors of every experimental laboratory in the country, nail them up, save the guinea pigs and let the

people perish. Turn the clock back to Hippocrates, four hundred and sixty years before Christ.

In the roll of those who have used or have defended animal experimentation from Harvey, the discoverer of the circulation of the blood, to Flexner, the man who has mitigated the mortality of meningitis, the name of Harold Baynes will not stand out. He saw the falsehoods, the poisoning of innocent minds, the conspiracy against health. He dropped his work, he went about telling the truth, he upset the plots for legislation, he unified the Doctors against the tumefied egos and sympathy perverts, he brought about the Society of Friends of Medical Progress.* To him we owe this; and to him apply the words which nobly conclude one of the great novels of our language:

"The growing good of the world is partly dependent on unhistoric acts; and that things are not so ill with you and me as they might have been, is half owing to the number who lived faithfully a hidden life, and rest in unvisited tombs."

OWEN WISTER.

*Now the American Association for Medical Progress, 370 Seventh Avenue, New York City.

ANIMAL HEROES
of the GREAT WAR



A SPLENDID GOLDEN EAGLE KEPT AS A PET BY AN OFFICER IN THE BALKANS. THE BIRD WAS BROUGHT UP FROM A BALL OF FLUFF AND IS SO TAME THAT EVEN STRANGERS MAY STROKE HIM; HE MAKES LONG FLIGHTS DAILY AND ALWAYS RETURNS TO THE CAMP.

ANIMAL HEROES *of the* GREAT WAR

MASCOTS

MOST people seem to be born with an interest in animals, if not with an instinctive love for them. If you walk down the street with a fourfoot of any kind, almost everyone turns to look, and some of the children will even follow you. Of course, the element of curiosity is present, but there is also something finer and warmer than that. If the animal happens to be a particularly lovable one—a beautiful dog for example, it at once changes your relationship toward almost everyone you meet. There is a bond of sympathy between you and

people who a moment before were strangers. You and they have a mutual friend, and often there is a disposition to cultivate your acquaintance. So they speak to your dog, pat him if he'll let them, smile and nod to you, perhaps, and next time you meet it is on a new and friendlier footing.

No doubt this universal interest in animals was partly responsible for their adoption as mascots by so many regiments in the armies of the allies. These mascots came from everywhere, were of all kinds, and often bore some relation to the place from which the regiment came. For example, a certain Australian regiment brought a



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"BILLY" THE GOAT MASCOT OF THE WELSH REGIMENT MARCHED WITH THE TROOPS BEFORE THE KING.

kangaroo; an English battalion which had been serving in India had an Indian antelope. One South African regiment brought a parrot, another a gazelle, and other regiments brought monkeys. Among the American mascots were eagles, raccoons, and coyotes.

Here we see another element creeping in; these mascots were reminders of home; they helped to tide the men over that difficult period during which they had broken away from their old lives, but had not yet become accustomed to the new. Several of the Canadian regiments brought black bears with them. The Welsh regiments usually had a goat, and of course his name was usually Taffy. We all remember the old nursery rhyme

"Taffy was a Welshman
Taffy was a thief
Taffy came to my house
And stole a piece of beef."

And the goat answered the full description, for, as we all know, a goat will steal almost anything.

Of course, it was not possible to take all these mascots to France, but they did their bit for days or weeks or months as the case might be, while the soldiers were waiting in English camps before going across the Channel. And many of the more "practical" animals such as dogs and cats and goats went to the Continent, and in many cases even to the trenches with their soldier friends.

The dog was the most popular of all, and it was fitting that he should be, in view of his position as the oldest, the most loyal, and most unselfish friend of man. There are some remarkable stories of dogs which long after their masters had left home followed them to France and joined them in the trenches. Needless to say, most of



WIPERS! AN OFFICER'S MASCOT TAKES HIS TURN IN THE SADDLE.

these stories are pure fiction, but I have found one which appears to be authentic.

In August, 1914, Private Brown of the First North Staffords shires left his home in Hammersmith and went to the Continent with his regiment. In late September, Mrs. Brown missed their Irish terrier, Prince, and heard nothing of him until some weeks later she received a letter from her husband stating that the dog was with him in France. He continued: "It is a very strange thing that I should have got him. A man brought him to me from the front trenches. I could not believe my eyes until I got off my horse and he made a great fuss over me. I believe he came over with some other troops."

In front of American Red Cross Headquarters at 4 Rue de Chevreuse, Paris, sat a large, dignified Alsatian sheep dog. That is to say, he had been born a sheep dog, but now no one could possibly mistake him for anything but a French soldier. He had been through the war, and he showed it, partly by his soldierly bearing, partly by a scar on his shoulder and one blind eye, and last and most convincing of all, by the Croix de Guerre which blazed on his broad chest. This was "Tommy" who perhaps had seen more actual fighting than any other mascot in the Allied armies. He had begun his war career with the Central Powers, but early in 1915, a regiment of Canadian Scots made a fierce attack on the German lines near Amiens, and "Tommy" was among the prisoners they took. The dog seemed well satisfied with the change he had made, and from that time until the end of the war he "served" with the Scottish regiment. He had his own gas mask and wore it whenever the enemy put down a gas barrage. Once it was not put on in time, and the dog was rather badly gassed.

One gets some idea of the severity of the fighting in

which that regiment was engaged when it is known that from first to last in something less than four years Tommy was owned by no less than fifteen officers, all of whom were killed or severely wounded. The dog himself seemed to bear a charmed life. In spite of the fact that he always went over the top with the men, and that he very often led them in the attack, he finished the campaign in good health. To be sure, he was wounded three times, but his honorable scars simply served to endear him the more to his fellow soldiers. And when his regiment was awarded the Croix de Guerre for gallantry, by unanimous consent the decoration was attached to Tommy's collar.

One of the most famous of the officers' pets was a fox terrier named "Spot," belonging to General Townshend. Because he was with his master when the latter was holding Kut el Amara, he became known as Spot o' Kut. As



SOME OF THE MASCOTS OF A BATTLE PLANE SQUADRON. 22ND SQUADRON BRISTOL FIGHTERS.

we all know, Kut el Amara finally fell, and General Townshend was captured by the Turks. But the latter had such admiration for their brave and distinguished prisoner that they showed him every courtesy. When he was taken to Constantinople, they wanted to send his little dog with him, but that was against the Turkish law. So they took Spot, and sent him down the Tigris with a special escort, and under a flag of truce, delivered him to the British forces which had been sent to relieve Kut. The little terrier was eventually taken back to England, and a friend of General Townshend who met him at the dock gave me this brief account of his adventures.

From Lady Edward Spencer Churchill comes the story of a beautiful English setter which belonged to an Algerian soldier. This dog managed to get on board his master's ship, and landed with him at Marseilles. Thence he crossed France into Belgium, accompanied his soldier-owner in the great retreat and in the victory of the Marne, and shared with him the life in the trenches. One night a great shell burst in a trench, wounding the Algerian and burying him alive under a mass of fallen earth and débris. The dog was unhurt and began to hunt for his master. He quickly scented him out and began to dig for him. He dug until his paws were raw and bloody, but at last he uncovered his master's head. By that time he was exhausted, he could dig no more, but he howled and barked until he attracted the notice of some soldiers who came and dug the sergeant out, limp and almost dead. He was placed on a stretcher and taken away in an ambulance, and behind the ambulance there limped a very weary and very bloody dog. When they reached the hospital, he followed the stretcher-bearers into the ward and there was some talk of putting him out. But when the head nurse heard the story, she exclaimed:

"He has as good a right here as any of us have." So he stayed, and when the sergeant recovered consciousness, he found his old friend standing with his paws on the bed. The dog helped to nurse his grateful master back to health, and they finally left the hospital together.

No less interesting is the story of another setter that "joined" an American regiment in France and attached herself to a young marine, who loved dogs, and who made her understand that he did. First he shared his supper with her, for she was starving. Then he gave her a bath and discovered under a coat of mud a silky-haired white dog with chocolate patches. He named her Belle, and because the regiment was occupying a sector near Verdun, she was known to the soldiers as Verdun Belle. She slept at her master's feet, and accompanied him silently when he went on duty at a listening post. No one knew where she came from, but she was evidently familiar with the ways of war, for she never showed the least nervousness, nor even surprise, at the sights and sounds which characterize life at the front. After she had had a distressing experience with gas, her master cut down and twisted a French gas mask so that it fitted her fairly well, and she soon learned to run and bring it when the enemy put down a gas barrage.

The following spring, Verdun Belle presented the regiment with seven fat, squirming, black-and-white puppies, and their eyes were hardly open before orders came for the regiment to strike camp and hurry across France, to help check the German advance north of the Marne. Those orders would have been a good excuse for almost anyone to leave the mother dog and her little ones behind. But the young marine was no fair weather friend. He dumped the puppies into an old wicker shell basket and trudged away with the wistful Belle at his



OFFICERS OF THE TWENTY-SIXTH DIVISIONAL TRAIN WITH THEIR MASCOT.

heels. Anyone who knows the amount of hardware that a marine is required to stand up under on the march, will realize the devotion needed voluntarily to add to it seven fat pups and a basket.

For forty kilometers he stuck it out, and when a long advance by motor lorry followed the march, the marine gave up his seat to the dogs and draped himself over the tail-board as best he could.

But more hiking followed and he found his burden heavier than he could bear. So he solemnly—almost reverently—killed four of the puppies, slipped the other three into his shirt, threw away the basket, and marched along, with the trusting mother dog still at his heels. One of the puppies died, but he carried on with the two survivors.

One night the regiment was passing through a town whose streets were crowded with refugees and with soldiers and transport moving to and from the front. Somewhere in the confusion Verdun Belle was lost, and next morning the young soldier found himself with two hungry, wailing, motherless pups. He begged a cup of milk from an old French woman, and with the eye-dropper from his kit did his best to feed the orphans. The meal was not a success, and now on a veering wind came the sound of cannon. Soon he would be in the thick of the fighting—no place for motherless puppy dogs. In the endless procession of wheeled vehicles an ambulance was passing, and the lieutenant and the sergeant who sat in front had kindly faces. The marine ran up to them, blurted out his pathetic little story, dropped his treasures on the seat between them, and was gone. That night, after a field hospital had pitched its tents and set up its kitchens on an old French farm, a sergeant and a farm-bred private might have been seen chasing four very distrustful cows around a large pasture in a vain endeavor to get enough milk to feed two hungry black-and-white puppies.

The following day the doglets muddled through, but in the evening their problem was solved. For that evening a fresh contingent of marines swung past the farm, and behind it a dusty, tired and anxious dog—it was Verdun Belle. Nearly ten miles back she had lost her master, and apparently she had decided that, until she could find him, any marine was better than none.

The troops passed on but the dog did not. At the farm gates she stopped, drew in her slavering tongue and questioningly sniffed the air. The next instant she was racing up the drive and across the grass to a shady tree, under which lay a small pile of discarded dressing from

the hospital. Curled up on those bandages, fast asleep, lay two black and white pups. The rest is private.

But at the front the fight was on and a steady stream of ambulances passed in through the gate of the old farm, to be unloaded at the door of the receiving room. One evening they lifted out a young marine,—a shell shock case, unconscious—and then—a dog went crazy. The first conscious feeling of the wounded man was of a soft tongue licking the dust from his face, and then Belle was relieved of her work to make way for those whose efforts, if less eager, were more hygienic. And on the following Sunday when visitors were admitted they found two cots pushed close together in the shade of a tree. On one lay a mother dog nursing two contented puppies; on the other, fast asleep, was stretched the young marine, one arm thrown out so that his kindly hand could clasp a silken ear.

Naturally the navy did not have quite so many mascots as the army, but it is safe to say that there were few large war vessels which did not boast at least a cat, a dog or a goat.

Very often the mascots were not taken from home but were captured from the enemy, sometimes under remarkable circumstances. For example, on one occasion, H. M. S. "Falmouth" sank five German trawlers in the North Sea. One of them being made of wood, and empty, was very difficult to sink. First they blew a hole in her bottom, then they put two lyddite shells into her, but although she was now full of water she refused to go down. Then the British ship deliberately rammed her and cut her clean in two, and on one of the still floating halves, they saw a fox terrier, smiling and wagging his tail. He had been blown up, shelled and



Ministry of Information, London

THE PET OF A BIG GUN CREW SITTING ON ONE OF THE HUGE SHELLS.

rammed, but he seemed to think that the whole show had been performed for his benefit. He was rescued and adopted by the men of the "Falmouth," as their mascot. But on his collar was a tag bearing the name, Fritz, and it is said that the men of the "Falmouth" refused to go into action until that name was changed. At any rate the dog was renamed, and Elizabeth Banks has perpetuated the memory of the event in her little poem entitled, "Fred," of which the following is one stanza:

On the day that we first went into the fight
They whistled me onto the deck,
Saying "Fritz," your name is a regular blight,
It'll bring about a wreck.

To start with a mascot christened "Fritz"
Would mean we're as good as dead!
Oh, what shall we do? By *donner und blitz!*
We'll just rename you "Fred"!

Perhaps no more touching incident is recorded in the annals of the naval mascots than one connected with the death of Captain Loxley of the ill-fated battleship, "Formidable." True to the finest traditions of the British navy, this gallant officer stood calmly on the bridge of the doomed ship, a cigarette between his lips and a thoughtful smile lighting his face, awaiting her final plunge. And close beside him, just as calm and ready to share with his master his inevitable fate, stood a staunch little Scottish terrier, Bruce. The two were old friends and shipmates of long standing, and it seemed fitting that they should start on the long last voyage together.

Now, as everyone knows, some of the crew of the "Formidable" were saved, and among those brought ashore in an unconscious condition was an able-bodied seaman named John Cowan. He was carried into the Pilot Boat Hotel, Lyme Regis, and as all efforts to revive him failed, his body was laid out on the kitchen floor. Then a curious and interesting thing happened. A rough-coated, cross-bred collie dog named Lassie, belonging to the house, came into the room. Little attention was paid to her at first, as all hands were busy working over the man who still showed signs of life. But Lassie walked over to Cowan's body, and began to show uneasiness. She lay down close against him and began to lick his face. She kept it up and at the end of half an hour, there was a faint moan from the supposedly dead man, and a slight movement of the limbs.



British Official, London

THE LENGTHENING OF THE BRITISH FRONT: BILLY, THE PET OF ONE OF THE BRITISH REGIMENTS, WEARING ONE OF THE REGULATION STEEL HELMETS.

Willing hands quickly took up the work which Lassie had begun, and Cowan is alive to-day.

Most extraordinary risks sometimes were taken to rescue these animal pets of the army and navy when they got into trouble. On one occasion a goat belonging to an East Indian regiment strayed into the firing line and became panic stricken when the shells began to burst around it. It ran here and there, bleating piteously, and seemed quite unable to remember its way back. Suddenly the dark figure of a Sikh shot up over the top of a trench, and hurled itself, a living lance, into the deadly shower which swept the field. He reached the goat, and started back with it, but a shell exploded just beside them and they were both killed by the flying fragments.

On a cold March day, the bulldog mascot of a British warship ran to the side to bark at a passing fishing

vessel. The deck was covered with ice and the dog slipped and went into the sea. There was a gale blowing and the water was very rough, but one of the midshipmen, Mr. Sydney T. Warr-Buckler, at once went overboard. With great difficulty, owing to the cold, the heavy sea, and the fact that he was fully dressed, he managed to swim back with the dog to a rope that was thrown from the ship. The R. S. P. C. A. awarded Mr. Warr-Buckler a silver medal for the deed.

Of the many splendid things done during the war by The Royal Society for the Prevention of Cruelty to Animals, few were finer than the establishing of great quarantine kennels for the dogs of soldiers and sailors who had served in the World War. The officers of the Society realized that the "Tommies" had grown desperately fond of the dogs which had been in the trenches with them, and which had shared their hardships for months—sometimes for years, but they knew that most of these men could not afford to comply with the strict English law which requires every dog entering England to remain in quarantine for six months. The cost of the animal's board was more than the average soldier could pay. So the R. S. P. C. A. raised a large sum of money, and established at Hackbridge, near London, a dog home, with an up-to-date hospital attached, where soldiers' dogs would be kept and cared for during the full period of quarantine, and where the owners could then go and take them by paying a nominal fee. A soldier did not even have to bring his dog to England; the Society took charge of it while he was still in France. On receiving his license, he delivered his dog at a veterinary hospital set apart for the purpose near Boulogne. There it was kept for at least five days during which time it was examined daily by a veterinary surgeon. Then, as soon

as there were enough dogs to make it worth while, they were muzzled and chained and put aboard the first horse transport leaving for England, in charge of a sergeant of the Royal Army Veterinary Corps, who took with him a number of men to assist in loading them at Southampton. They were taken to Hackbridge to begin their long period of quarantine.

I visited the dog home at Hackbridge and found there at that time 140 dogs of all breeds, sizes, and colors, each with a clean, dry, brick-built enclosure to himself, with an ample bench and plenty of fresh straw. In some of the buildings were large breeds, and there I saw sheep dogs, setters, greyhounds, and retrievers. Other buildings were devoted to the smaller breeds, and bulldogs and terriers of all kinds leaped up to greet me. Most of them were not thoroughbreds, but they were an awfully honest looking lot, and their joy at meeting me seemed very frankly tempered with disappointment that after all it was not their master who had come.

The most distinguished guest of the home whom I met on that occasion was a little Italian greyhound named "Prinny," doubtless diminutive of that very popular dog name, "Prince." Prinny was an officer's dog, and on his collar he bore a metal badge with the inscription:

GAZA, BEERSHEBA, JAFFA, JERUSALEM, JERICHO.
TORPEDOED 27-5-18. H. M. T. LEASTOWE
CASTLE.

The home was in charge of an alert young veterinary surgeon, who had just left the army and who was very keen on his new work. He was fond of dogs, and it was evident that the dogs were fond of him.

Closely allied to the mascots were the dogs, ponies, and other fourfoots, used to collect money for The Royal

Society for the Prevention of Cruelty to Animals, The American Red Star Animal Relief, The Blue Cross, The Purple Cross, and other war charities. Most of these animals were on the other side of the Atlantic. There was "Bob" at Liverpool, "Prince" at Crewe, "Cymro" at Rhyl and many others. But the champion collecting dog of the world was said to be "Brum" a brown spaniel-retriever mongrel who had the "monopoly" at Euston Station, London. Brum "had a way with him." With a little tin box on his back he trotted up and down the station, barked to attract the attention of his victims, and then shook hands to thank them if they dropped a coin. He was presented to King George and Princess Mary, and when he called to pay his compliments to Queen Alexandra, she slipped a sovereign into his box. One day at a party he gathered up \$70 for the Ambulance Society, and within a year after the beginning of the war he had collected \$8,000 for different charities.

One of the most notable dogs that helped to raise money for war purposes was "Jack" who belonged to Miss Edith Cavell, the English nurse, who, as we all know, was killed by the Germans in Belgium. Nurse Cavell had owned Jack for ten years, and after her death there was difficulty in finding a home for him, because people were afraid of incurring the resentment of the invaders. There was one willing to take the risk, however, and that was that widely-known lover of Animals, the Dowager Duchess de Croy. She took him, ill from neglect and worry over the loss of his beloved mistress, and nursed him back to health. She sometimes loaned Jack for exhibition purposes, and at a great dog show held at Lille, he proved one of the most attractive exhibits. Many soldiers, and the wives and sisters of soldiers who had been nursed by Miss Cavell, gathered about him

with tears in their eyes, and more than a thousand photographs of the famous dog were sold for the benefit of the French Red Cross.

A letter from the Dowager Duchess, written in June, 1920, informed me that Jack, though very old and stiff, was alive and happy.

On the 7th of March, 1923, Jack's mistress wrote to me again, telling of his death.

"After the Armistice," she said, "you were kind enough to take great interest in Nurse Cavell's poor old dog 'Jack,' which I had rescued after her murder, and you will, I am certain, be sorry that he died on February 16th of this year. He was ill only a few hours. He was very old. Nurse Cavell I am told had him for eight or ten years—and he was with me for eight years. I am sure you will quite understand how I feel the loss of this good and faithful animal."

When we think of the joy given by these thousands of mascots, and of the services performed by the horses, mules, camels, oxen, donkeys, dogs, and pigeons, is there any wonder that at the request of the Secretary of the Royal Society for the Prevention of Cruelty to Animals, the Bishops of Durham, London, Bath and Wells, Bristol, Chester, Liverpool, Manchester, Norwich, Rochester, Salisbury, and Truro, recommended the following prayer for use by the clergy in their respective dioceses:

"And for those also, O Lord, the humble beasts, who with us bear the burden and heat of the day, and offer their guileless lives for the well-being of their countries, we supplicate Thy great tenderness of heart, for Thou hast promised to save both man and beast, and great is Thy loving kindness, O Master, Savior of the world. Lord have mercy."



BRITISH ARTILLERY HORSES GALLOPING UP TO THE FRONT WITH A LOAD OF AMMUNITION FOR THE GUNS.

HORSES

‘**A** HORSE! A horse! My Kingdom for a horse!’ It was before Columbus discovered America that Richard III paid this high tribute to the horse in war. Since then there have been many inventions which have threatened the prestige of this most valuable servant of man. There are many who believe that the bulk of the work in the war against Germany was done by motor vehicles. But the fact remains that, after all these centuries, the horse still holds his own in war; that nothing has supplanted him or is likely to supplant him. Motor lorries are more powerful; on good roads unobstructed they can move greater weights at higher speed. But when real trouble begins, when there is deep mud, when there are shell holes and ditches and treacherous river beds to be crossed; when there are high steep banks; when there are no roads at all perhaps—then we learn the difference between the terrific, automatic, but un-

adaptable power of a motor car, and the more moderate, intelligent, and highly adaptable, strength of a horse.

"The power of an army as a striking weapon," says General Sir Douglas Haig, "depends on its mobility. Mobility is largely dependent on the suitability and fitness of animals for army work."

General Haig fought in France and when he spoke of "animals," he referred to the animals used in France, chiefly horses and mules. They were not only valuable; they were indispensable. Sixteen million of them were used on all fronts, and had the Allies been deprived of them, the victory would not have been ours.

Long before we entered the war the United States was aiding Great Britain and France by selling them war horses. Fully two-thirds of all the horses, and practically all the mules, used in the British army were purchased here and shipped to England, chiefly from Newport News. A rough lot they were for the most part; unkempt, unshod, and untrained for their new work. But a few weeks at the English remount depots, in the hands of the greatest horse masters on earth, and they were fit to be sent to France to take part in perhaps the most vitally important work which horses have ever been called upon to do.

With arrows branded on their quarters and numbers on the hoofs, long strings of these splendid animals filed up the gangways and down the ramps to the various decks of the transports which were to bear them to France. And at night these transports would slip noiselessly away from their berths at Southampton and other ports, and accompanied by grim destroyers and perhaps with an airplane policing the sky, they headed for the coast of France. What it would not have meant to the Germans to destroy those transports! But, thanks to the vigilance

of the British navy, not a single horse was lost in transit through the activities of the enemy.

In the transportation of the British and of every other army, horses were used in vast numbers. And naturally they were of most importance when conditions were such that motors could not be used—on precipitous hills, in deep mud, on shell-blasted roads. What the animals suffered from overwork, exposure, and disease, has never been told—must never be told, in detail.

But in fairness to our four-footed allies we should all know something of the work we sent them to—of the work they did so well, so uncomplainingly, and which, directly, or indirectly, saved so many human lives. Let me draw some truthful pictures that will enable you to see them in the only way in which they can be seen now, through the imagination.

It was a pitch dark night during the last phase of the Argonne Drive, and the Supply Company of the 307th Infantry, 77th Division, of New York, had been ordered to move up to a point beyond Champigneulles. Between St. Juvin and this point there was a long steep hill, broken by shell holes covered with deep and sticky mud. The head of the mile-long transport halted in a cold and driving rain, that the tired horses and mules might rest for a minute before the uphill struggle began. It could be but a minute, for the road was under enemy fire, and crowded with guns, tanks, and marching troops struggling toward the front.

"Git up!" A team of Missouri mules threw themselves into their harness and a rolling kitchen at the head of the column began slowly to climb the hill. The animals, thin and half-starved as they were, pulled bravely on until they were half-way up. Then the wheels slammed into a shell hole and the mules, after one good

try, gave up and stood with hanging heads. Down came the driver's lash but they simply reared and shook their ears. Mules are quicker than horses to realize when a task is beyond their strength. The whole column was halted, and not all the vigorous and well-intentioned profanity of the teamsters could start it again.

Among the transport animals was a pair of little bay horses with thoroughbred blood, whose driver almost worshipped them. Thanks chiefly to his unremitting care they had more than held their own. In spite of their light weight they had stood the hardships of the campaign, their fine spirit was unbroken, and in that long column they alone danced in their muddy tracks and tossed their heads, impatient at delay. Their driver was ordered to go forward with his team to help the mules out of the shell hole. He hitched on in front, the little bays leaped to their task, and, the heartened mules falling in behind them, the load was lifted slowly up and forward. Then under terrific driving it crawled through the sticky mud to the top of the hill. The mules went on to their hard-earned rest, but the now lathering bays



BRITISH HORSES TAKING UP AMMUNITION UNDER ALMOST IMPOSSIBLE CONDITIONS.

were sent down the hill again. Another team stuck, and the game little horses were brought to its relief. Again and again, and still again, that gallant pair repeated their heart-breaking performances, never balking, never sparing an ounce of their waning strength. Now, when they were hitched, they trembled and staggered; each time it seemed as if they had reached the limit of their endurance. An officer rode alongside the driver who was little more than a boy, and asked how they were standing it. Came the sobbing answer:

"We're killing them! We're killing them!"

And killed they were that night in their muddy harness. The proud blood of Godolphin would not let them refuse to fight, but kept them to their never-ending task until they fell, to die by the side of the road.

They had given their best—their all; and it was very good. But they gave no more than millions of other horses to make victory possible.

"Fate may bring them dule and woe; better steeds than they
Sleep beside the English guns a hundred leagues away."

Not better, perhaps, but just as good and brave. Aye, and beside the French guns, the Belgian guns, and the Italian guns—beside the guns of all the chief combatants in the Great War.

Splendid as were the horses in the transport, those serving with the artillery are just as worthy of our admiration. Let me draw you another picture to show them at their work.

It was the day before a great attack at Vimy Ridge, and eighty thousand British horses and mules had already been drawn into the region about Arras for the big "show." Thousands more were pouring in along the principal roads, which were filled with every kind of



EIGHT MILLION HORSES DIED IN THE GREAT WAR—MANY FROM WOUNDS, BUT MOST OF THEM FROM DISEASE OR EXPOSURE. THE THREE SHOWN IN THIS PHOTOGRAPH WERE KILLED BY THE SAME SHELL, AND ONE OF THE DRIVERS MAY BE SEEN IN THE BACKGROUND WEeping OVER HIS LOSS.

horse-drawn engine and vehicle used in the game of war. There were field batteries with their limbers and transport, general service wagons, infantry transport including traveling kitchens and water carts, Red Cross supply wagons and ambulances, nearly all drawn by light draught horses, many of them from "the States." Now and then there came a string of pack mules from Missouri or Illinois, laden with ammunition, engineers' outfits, or sections of buckboard; a detachment of cavalry, or a big gun drawn by ten or more powerful "heavy draught" horses that shook the roads as they came. All were moving forward, in timed and orderly procession, to take their definite parts in the great push.

For miles in every direction the country was dotted with camouflaged horse shelters, or groups of horses and mules without shelter. Like those on the road, the animals were of all classes from light cavalry to heavy shires, but by far the greater number were light draught with Percheron blood, the kind generally used in the transport, or—perhaps most important of all—to carry ammunition to the guns at the front. Ah, the guns! They were so many and so hungry. “Out there” they lay hidden in their muddy gun-pits in a seemingly endless line, which stretched into the horizon to the right and the left, and so close together that a man could barely pass between. And day and night they poured a cataract of roaring, bursting, steel which carried death and ruin to the crumbling German trenches. And they had to be fed, those guns, and it was not enough to supply them with shells as fast as the grim-faced, sweating gunners could fire them. Each gun must have a thousand rounds of ammunition in reserve. And to carry up those shells



TAKING UP A BIG BRITISH GUN WITH A TWELVE-HORSE TEAM AND THE HELP OF A GUN CREW.

over the frightful roads and the almost impassable ground beyond the roads was the work of the only inventions of God or man which could perform it—the horses and the mules.

Of course they had been working all the night before and for many nights. They were worn and weary and they should have been resting, but under the existing conditions real rest was impossible for most of them. It had been raining or snowing for days, and the ground was soaked with water. The teamsters of a fortunate few had found hard standing for their animals—a bit of sheltered road, the cellar of a ruined house, boards or tiles torn from a broken building perhaps—and it is surprising what hardships horses can live through if only they have something solid to stand on when they are off duty. But most of them were quartered on soggy earth which under their own trampling soon became a quagmire into which their legs sank deep. In vain a horse would draw up one hind leg from the sucking mud; the other would sink in just as far, to be pulled out in its turn a moment later. What rest could he get in a treadmill like that?

But the plans for the big attack went steadily on, and the gathering dusk found thousands of horses, rested or unrested, going out to their work. Cavalry patrols, with muffled bits and stirrups, moved silently away to gather information at dangerous points beyond the line and bring it swiftly back. Gun teams left their shelters to pick up their guns and drag them forward to the positions already prepared for them; transport wagons rumbled in every direction on a thousand errands, and ammunition carts, each drawn by from four to six horses, began to move toward the distant thunder. In imagination we see the teams, hundreds of them, standing pa-



Ministry of Information, London

GOING THROUGH A RIVER ON A GALLOP ON THE BRITISH WESTERN FRONT IN FRANCE.

tiently at the ammunition dumps, and, as the last long shell which completes a load is lifted into position, the willing horses throw their weight into their breast plates, and the long haul has begun. There is no teamster, but each of the nigh horses is ridden by a steel-helmeted soldier technically known as a "driver," who guides with the left hand, leaving his right free to manage the "off" horse and to handle a whip.

The mud is everywhere, and deep and clinging, but the horses are comparatively fresh and pull bravely out, now and then swinging round the edge of a big shell crater filled with water, and on until they reach the road. Each wagon takes its place in a long procession moving to the front, while a similar procession on the other side of the road is passing to the rear, composed of empty ammunition wagons going for fresh loads of shells, ambulances carrying wounded to an advance hos-

pital, field guns moving to new positions, men from the front line going back to rest.

Of course the road is well known to the enemy, and the German gunners have not neglected it. In spite of all the engineers have been able to do, it is in shocking condition. The horses splash and stumble and bump each other, the heavily laden wagons grind and lurch and slam their wheels into the ruts and shell holes, spouting mud over everything, including themselves and the shells they carry. Now and then there is a momentary halt as a wheel gives way, or a horse sprains or breaks a leg in a shell hole, but the other teams pull out and around the obstacle, the unserviceable horse is removed, the load of the broken wagon quickly distributed among other teams, and the procession is moving on again as if nothing had happened. Two miles or so of this slamming along the dark and shell-blasted road, and then the leaders of some of the wagons swing around to the right through a gap in a hedge scarcely visible against the rain-clouded sky. Here the men pull up to breathe their horses. The drivers themselves dismount, their caps and coats covered with wet mud, and here and there one of them with a blanketed lantern or a flashlight looks things over. Large clots of ooze are dropping from hubs and spokes, the shells are thickly coated with brown, and the dripping horses heave and pant from their strenuous work.

The roar of the guns is much nearer now, and enemy shells scream overhead, or burst with the splitting crack of thunder close at hand. The worst of the trip is yet before them, so the drivers swing into the saddles and press forward through the night.

But the ground has been pulverized by the German barrage and the rains have made it a swamp. The

wheels sink to the hubs and the horses to their knees, and frequent stops have to be made for rest. A field battery just ahead is slowly plowing its way through, when there comes a blinding flash, the earth is rocked by a bursting shell, and above the murderous hiss of the flying fragments the scream of a horse. There is a call for a light, the kicks and groans of a frantic beast, snorts of alarm, and plunging hoofs, followed by curses and blows. The voices of horse-wise men soothe their trembling teams, there is a sharp order for spare horses, a click of hook and ring, and a British field battery moves slowly toward its new position, leaving stretched in the mire two faithful comrades who have done their bit and given all they had to give.

But more dangerous even than the shells themselves are the craters now filled with water. They are so numerous that it is almost impossible to avoid them all in the dark, and one misstep by a floundering gun horse or an overladen mule sends him down to his death. Thousands of animals, and many men as well, died in the flooded shell holes at Vimy Ridge alone. These holes are so deep, the sides are so steep, and the mud so soft and yielding, that once an animal gets in he is usually doomed. Of course his driver always makes desperate and pathetic efforts to save him, but usually his last kind act is to put a bullet into his old friend's head to end his misery. It is at such times that rough men show their softer natures—prove their very genuine grief at the loss of dumb companions who have shared their hardships. Often they are choked with emotion, and the tears run down their grimy cheeks—tears which their own physical suffering, no matter how terrible, could never have wrung from them.

But on through the mud and around the craters as



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ARTILLERY TEAMS WAITING TO TAKE UP AMMUNITION.

best they may, the ammunition horses haul, and lunge, and flounder toward their goal. Perhaps before they can reach the gun positions which mark the end of their journey, they get into a quagmire which defies their waning strength and courage. The mud holds the wagon fast in its sticky jaws; pull as they will they cannot move it; it seems that flesh and blood can stand no more. Oh, yes it can, though—in war it can—for now the drivers call on the trembling brutes again, and drawing long whips they flog them through—make them give up those last few ounces of strength which are needed to win. For just beyond are the guns—the guns which must be fed, because the fate of the world depends upon the feeding of them. And as the shells are unloaded, the horses stand, legs wide apart, heads bowed, sides heaving, and with lathered coats streaked with red and brown. And presently they will pull themselves together, struggle back with the empty wagon, and, after a brief rest, be started to the front again with another load of shells.

And Vimy Ridge was taken, and it was those shells and millions more, carried up by the sweat and blood of horses and mules, that loosed the clutch of German hands, and made way for the waves of cold steel that would not be denied. And it was the cavalry which, "hell for leather," swept forward after the retreating foes, and cleaned up the towns and villages they tried in vain to hold. It has been said that the days of cavalry have passed, but you can't tell that to the men who saw it at Vimy; and you can't tell it to the men who saw the immortal "Scots Greys" go through at Mons, as they went through at Waterloo. And they would laugh in your face who saw Allenby loose his whirlwinds over the plains of Palestine like the scourge of God, and plough the soil of it beneath the hoofs of his galloping horses in such fashion that the seed of the Turk will never sprout there again.

There were many factors which contributed to the winning of Vimy, but perhaps none was more important than the horses. Certain it is that without the horses this great stronghold could never have been taken.

And since it was our war—not their war—it is only



BRITISH CAVALRY IN ACTION.

fair to ask what compensation they got. Half of them died. The other half that lived through it—lived through the storms of shells and bullets, through the heart-breaking work performed under the terrible conditions of war—through the diseases which attacked them when those conditions had reduced their vitality—have received few honors. By some it has even been denied that they played a great part. What they did get, if they were lucky, was a bare living. But they earned more than that, and the balance is still due to them. We used those horses and millions more to the very limit, and it was fitting that we should. When men are dying by thousands, and civilization itself is at stake, there is no time for sentimentality. There was no reason for sparing horses if by their use we could shorten the war, and save the lives of men and all that real men stand for. But by using them in this way we incurred a deep and lasting debt of gratitude. We can never pay it to them. More than half of them are dead—the rest we shall never see. But we can pay it in part, and lasting shame to us if we don't, by greater kindness, greater decency, more thought and consideration for other horses all over the world, no matter in what capacities they may be working. Let us pay our debt—let us pay our debt!



SOME OF THE SCOTS GREYS.

Ministry of Information, London

THE FIGHTING HORSE

CAVALRY lost much in popular esteem during the War. Attention was centered upon the European front, where the major portions of opposing forces were long locked in trench fighting, and the combat was stabilized. There was no field for cavalry's salient characteristics. However, it is axiomatic that wars are decided, not by armies in position, but by armies in motion. The war was lost for Germany in the opening weeks of movement; it was won for the Allies beyond all question when the whirlwind campaigns in Palestine and Syria turned an enemy flank and forced Turkey to capitulate. In both these comparatively brief periods cavalry played a highly significant part.

Both German and American leaders felt the pinch of insufficient cavalry at critical moments. General Von Kluck, describing the pursuit of the British army after Mons and its skillful and successful retreat on August 24 and 25, 1914, declared that it escaped his net chiefly because he lacked the effective means of making it stand and fight—namely, the three cavalry divisions of Marwitz's corps. General Hunter Liggett, commanding the American First Army, believed that if he had been able to throw two small cavalry divisions into the conflict on November 2, 1918, very few organized units of the enemy could have escaped. In each case the retreating force was favored by scanty cavalry in pursuit.

British cavalry proved its worth during the initial fighting near Mons and the subsequent retirement. In the advance and the preliminary fighting it covered the British front until contact with the enemy became close, when it moved to protect the left flank. German pressure soon became so heavy that withdrawal was ordered; but the British were so closely held, and so hotly engaged, that they could not break away until the Second Cavalry Brigade attacked the German flank by both mounted and dismounted attack. Vigorously delivered, this held up the German advance for about three hours; and this small moment of respite enabled the British army to organize an orderly retreat.

Field-Marshal Lord French has stated that, had it not been for skillful handling of the small cavalry units, the British Second Corps would undoubtedly have been surrounded and three of its five divisions captured; that then the Germans would have cut off the British First Corps; and then, pressing on the flank of the Allies, would have pushed them off their line of retreat. A second Sedan of vast proportions would have resulted. And Field-Mar-



TO FACILITATE THE WATERING OF HORSES WHILE CAMPAIGNING, THE BRITISH CARRIED LONG STRETCHES OF CANVAS WHICH, BY MEANS OF TWO ROWS OF STAKES DRIVEN INTO THE GROUND, COULD QUICKLY BE CONVERTED INTO WATERING TROUGHS, AND COULD BE ROLLED UP, TRANSPORTED AND USED AGAIN INDEFINITELY.

shal Lord Haig's official report was: "Throughout the great retirement in 1914, our cavalry covered the retirement and protected the flanks of our columns against the onrush of the enemy, and on frequent occasions prevented our infantry from being over-run by the enemy cavalry."

A few weeks later, in October, 1914, there took place the race to the sea, of which Field Marshal Lord French wrote: "The greatest threat of danger with which we were faced was staved off by the devoted bravery and endurance displayed by the Cavalry Corps under a commander—General Allenby—who handled them throughout with consummate skill. . . . It is no disparagement to other troops engaged if I lay stress upon the fact that it

was cavalry alone who, for more than a fortnight previously, had been disputing, foot by foot, every yard of ground to the river Lys. They fought day and night with the greatest tenacity. . . . Taking into account the losses they suffered, they can hardly have opposed more than 2,000 rifles to the onslaught of more than two German army corps."

The conclusion is unavoidable that, throughout the early movements, cavalry forces were essential in the highest degree, and that this continued until the stabilizing of the front. This necessarily imposed a minor rôle upon an arm whose chief asset is mobility. But events were occurring elsewhere that were to require the use of cavalry, not in defense, but in offense; not in small units, but in large masses; in operations conceived broadly, and pushed to complete success with a dash and a spirit typical of the finest cavalry traditions. This was the answer flung at the detractors of the mounted army in June, 1917, when General Allenby, whose skillful use of cavalry in the early movements won highest praise, was ordered to the command in Egypt.

British prestige in the East was then at low ebb. The disasters at Gallipoli and at Kut el Amara were still poignant, and two heavy attacks made upon the defenses of Gaza had been thrown back with the loss of 11,000 men. Germany, holding the Allies immobile on the western front, looked hopefully to her Turkish ally to compass the British overthrow in the East. Throughout Moslem countries the spirit of revolt was raising its ugly head, Pan-Islamic emissaries stirred the Faithful against their white rulers, and the Turkish arms became invested with a sort of legend of invincibility. One more success and the Holy War might run like wildfire. The effect of

such a culmination upon the outcome of the Great War was hardly problematical.

In that crisis it was necessary that British supremacy be re-established, without mishap and without delay. This was the task committed to Allenby, a lifelong cavalryman. His tactical problem was, first, to drive the Turks from their entrenched position on the Gaza-Beersheba line, and, secondly, to accomplish their complete ruin. How this was done, how his squadrons swirled like a flooding vengeance across the ancient Plain of Philistia to the utter destruction of their Empire's foes, is now history.

Making a feint at Gaza, the real attack was sprung as a surprise at Beersheba on October 31, after a night march by cavalry over unknown country to gain the enemy flank and rear. The region was waterless; it could be no more than a one-day operation; success or failure ere nightfall—and Allenby was no Joshua to cause the sun to stand still. Turkish morale was high and the defense was stubborn; it was not until within half an hour of sundown that it appeared the objective might be gained. And victory then was accomplished by two regiments of Australian cavalry who, supported by gunfire, galloped across the open, straight at the trenches.

The sight was inspiring. Night was falling and the enemy trenches were outlined in flashes of fire from their own rifles, while above them burst the British shells. Against the position the long lines of cavalry swept forward at racing speed, half hidden in dust. Amid deafening noise they appeared to move silently. On and over they went, leaped two lines of deep trenches, dismounted on the far side and with the bayonet flung themselves into a hand-to-hand settlement. All was ended in ten minutes:

2,000 prisoners, 500 enemy dead—all at the cost of 64 dead and wounded.

This action initiated the spirit of dash which dominated the entire campaign. It opened the way for the capture of Jerusalem. With the Turkish left rolled up, Gaza at the seaward end of the line fell, and Allenby broke through the center at Sharia and Hareira. He gave the Turks no breathing spell. Cavalry streamed through the gap and the enemy in two groups retreated northward under vigorous pursuit.

Led by German generals, the Turks stubbornly fought delaying actions, and resorted to all devices to keep the pursuers from water. It became war for water. The supply was scanty and when the Turks could no longer defend wells, they blew them up. Water once in thirty hours was a luxury to Allenby's command, and it happened many times that his horses marched and fought more than seventy hours without quenching their thirst. They suffered more from lack of water than from all other hardships. At nightfall horses were often so exhausted that they refused food; and it was not uncommon to see weary troopers, themselves athirst, knead the horses' dry grain into little balls moistened with a few drops of water, and feed their mounts by hand. The half-dead animals responded to sympathetic human care.

The Turks delayed the advance sufficiently to enable them to entrench on strong natural positions, thus compelling a series of actions of high significance. At Huj they had fortified an exceptionally strong height and were dealing a devastating fire, when a few scattered troops of the Yeomanry Division, hardly a squadron in all, charged. It was a deadly clash. The Turkish gunners fired point blank into the charging horsemen, and their infantry, leaping upon the limbers, blazed away

with their rifles until cut down. It was all over in a very few minutes, fierce while it lasted and no surrender. Few of the Turks lived to fight again, while of the 175 British Yeomanry who delivered the blow but 95 came through unscathed.

This was an outstanding instance of great accomplishment by a small cavalry force, well led. The charge was on the spur of the moment, without reconnaissance or fire support, and was actually a try-out of a new weapon, being the first time the troops got properly home with the modern cavalry thrusting-sword,—which proved its worth. The fruit of the charge included four machine guns, eleven guns, a key point of defense, the Turks' principal ammunition depot, and even the Turkish staff's wireless code-book. This later proved of great advantage for it enabled the British to decode all messages, and to be in possession of enemy orders as soon as issued. All this was the result of the impetuous charge of an unsupported handful of cavalry against a strong artillery position.

That sort of thing is commonly held to be impossible by those that would hold cavalry to be a back number; nevertheless it is the sort of thing Allenby's men did time and again in those memorable days. Indeed, this was a campaign in which the word "impossible" found no place. The "impossible" was accomplished, and detractions of the cavalry were trampled into everlasting silence by the unstayed power of horse-borne fighting-men, carried to the supreme heights of accomplishment by their cavalry characteristics of mobility and fire-power. Their deeds would seem fabulous, in spite of the results, were it not for the authentic accounts of eye-witnesses.

Dry area and rearguard resistance had enabled the Gaza garrison to escape. Leaving most of his infantry

to follow, Allenby threw his cavalry northward in pursuit. The chase was racking; the whole corps suffered the tortures of thirst. On one occasion horses went three days and four nights without water. Consummate horsemanship alone saved them, brought them to final victory. One method of conserving the horses' strength was to carry a biscuit or petrol tin of water on the dashboard of every gun and wagon, and at hourly halts to wipe their mouths, nostrils and eyes with wet cloths. This refreshed them and relieved the symptoms of distress.

"Push on!" was the only order. Obstacles of man and nature, separate and combined, were tenaciously tackled and steadily reduced. On November 13 the enemy, who had been fleeing northward, was found posted on a new line, facing west and covering the roads to Jerusalem. The key point was El Mughar, on a high, rocky ridge. A brigade of infantry advancing to assault was definitely stopped by rifle and machine gun fire. A call for aid reached the cavalry; Bucks and Dorset Yeomanry responded. The position could be reached only by mounted charge over ground bare of cover, and the Yeomanry had two miles to go under direct fire, but were supported by artillery and machine guns.

Their work forms a cavalry classic. They scrambled up the steep sides of a water course, gained the plain, and trotted forward in extended order. At a half-mile from the enemy they shook into a fast canter. At a hundred yards from the crest the order to charge was given, and in they went with the sword. There was little momentum left in the charge by the time they reached the enemy, but the long swords did not need much pace behind them to do their work properly, and the issue was never in doubt. The Turks were completely routed, their right broken, their army again split. They lost 1500 in pris-

oners, and 600 dead were counted in the position. The British loss was 129 officers and men, 265 horses killed or wounded—a small price to pay for the results gained.

The next morning Junction Station on the Jaffa-Jerusalem railroad was entered. The two weeks' smashing campaign had brought Allenby to his tactical objective.

The Anzac Mounted Division and the New Zealand Mounted Brigade now drove the enemy north along the coastal plain, and entered Jaffa. The Yeomanry Division herded the Turks among the hills, driving them from successive positions. Out of respect to religious sentiment, General Allenby endeavored so to dispose his troops as to isolate Jerusalem completely and thus avoid fighting near the holy places, but the enemy was not restrained by any such sentiment. Some of the fiercest engagements of the campaign were fought during these movements. They were carried forward in a barren, rocky, ravine-riven land, very difficult for cavalry, and with greatly reduced forces. Ultimate success was the reward, and on December 11 General Allenby entered Jerusalem through the Jaffa Gate which, in accordance with ancient tradition, is opened only to a conqueror of the Holy City.

Since the beginning of operations on October 31 the force had fought nine general engagements, taken 9,500 prisoners and 80 guns, and advanced some eighty miles into enemy territory. The actual distances covered by some of the cavalry divisions were well above two hundred miles.

There followed the occupation of the Jordan Valley, and raids across the Jordan against the Hedjaz railway, designed to divide the Turkish forces still further by compelling them to maintain a considerable army to

the east of the river. The strategy was successful. The Turkish IVth Army was held there, and when the general advance on the west was resumed in September, 1918, it was directed against the Turkish VIIth and VIIIth Armies only. The eyes of the Turks and their German leaders were filled with the dust of deception, in the use of which Allenby was a master, and they were completely misled, both as to the disposition of his troops and his ultimate purpose.

A bold, simple plan which might serve as a model for the modern use of cavalry had been worked out, and it was now put in operation. It involved the use of infantry divisions to throw back the right flank of the enemy near Jaffa, opening a sea-coast door some fifteen miles wide through which the cavalry was to move and gain control of the Turkish lines of retreat. Both Turkish armies would inevitably become enmeshed in the net drawn around them.

The movement was carried through with the utmost speed. Infantry threw wide the door, cavalry poured through, gained the Turkish rear almost unperceived, threaded the narrow passes of the Carmel Range by night and emerged upon the historic Plain of Esdraelon. They "traveled in the print of olden war," but there was no time for research, or to muse upon past conflicts. They dashed into Nazareth, raided the Turkish general headquarters there, cut the railway, and then, returning to the outlets of the Carmel Range, disposed themselves in folds and hollows of the ground to net the Turks, driven from their positions and always retiring.

All night long defeated Turkish battalions marched down the mountain road and out upon the Plain. It was an eerie experience to lie in wait, and watch the Turks trudge wearily along in the bright moonlight, all uncon-

scious of the keen eyes of their enemies on every side. As each detachment got well out into the Plain the waiting squadrons were signaled, they sprang from their hiding places and charged down upon it. The terror of the Turks was not assumed when their senses were assailed by the thunder of encompassing hoofs, and when wild horsemen, their size exaggerated in the moonlight, drove relentlessly in upon them. Of resistance there was little. Each detachment was quickly hustled out of sight, and the squadrons returned to their lairs to await the coming of the next.

By daylight the Plain presented an extraordinary sight. It seemed to be covered with prisoners, motor cars, lorries, wagons, animals and stores in confusion, among which the sorely tried Australian troopers pushed their way, sweating and swearing, now rounding up a parcel of straying prisoners, and now riding savagely at the hordes of natives hovering on the outskirts and looting the stores of conquerors and of conquered with impartiality.

In a few days the debacle was complete. No force capable of resistance remained west of the Jordan. Attention was immediately turned to the IVth Army on the east, which was retreating on Damascus. "Push on!" was still the order. To read of such campaigns is easy, but it should be borne in mind what "push on" actually meant. The campaign had been pushed with ever increasing boldness for more than a year on end, over a terrain of untold difficulty, in a climate which, so far as the Jordan Valley was concerned, was shunned by civilized man; that it was in every essential a cavalry campaign, and that, in all that time, no remounts had been received. The last horses had been received in Egypt in June, 1917, and most of them had been issued to units be-

fore the commencement of the Gaza-Beersheba operations. Eight thousand remounts had been secured in Australia, but they could not be moved on account of the shipping shortage; every available ship was carrying men from America to Europe. Until the end of the war no more horses reached Egypt. When the stock of remounts in Palestine was exhausted, casualties were replaced by horses that had seen service and had been sent, sick or wounded, to veterinary hospitals, and were reissued as soon as they were reasonably fit for work. The stamina of the horses had been gradually worn down. At the commencement of the great turning movement in September, 1918, the remount depots were emptied and there was scarcely a fit horse left behind the fighting troops.

“Push on!”

On account of the reduced strength and numbers of both men and mounts increased mobility was required in the pursuit of the Turkish IVth Army. To this end all transport, even to regimental water carts, was left behind; nothing on wheels but guns, ammunition wagons, and a few light ambulances, participated. Men and horses carried two days' rations, and when those were gone they were to live on the country. Practically that is what they did until the administration of the conquered country was handed over to the French, more than a year later.

Military operations ended October 2, 1918, with a remarkable charge by the Third Australian Light Horse Brigade. They galloped six miles over an open plain, through a hot fire, and charged the Turks with the sword, going completely through the opposing force. In point of distance this may be a record cavalry charge, and it is not a little peculiar that it should have been delivered

so near the close of a war which was popularly supposed to have sounded the death knell of cavalry.

The campaign restored the tottering fortunes of England in the East; but more immediately it resulted in the complete destruction of three Turkish armies and the capture of 90,000 prisoners, of whom more than 83,000 were credited to the cavalry arm, which never exceeded a strength of 25,000. The Berlin-to-Bagdad dream had been proved chimerical, Turkey was eliminated as a combatant, and the end of the great struggle was brought within sight.

In all this success the horse, the trained cavalry mount, under the direction of an unexcelled cavalry leader, played a conspicuous part. And this was true on all fronts at various times. The operation of cavalry was not only conspicuous and efficient, but often decisive.

Nothing mechanical, on the earth or above it, has yet been devised, that excels, or even equals, the horse in war. The tank is more expensive, much slower, and hampered to a much greater extent by terrain. The airplane should properly be regarded, not as a supplanting, but as a co-ordinate arm. Allenby employed it thus and gave his cavalry a broader horizon, enabling it to deliver such bold strokes as were seen in Syria and Mesopotamia—strokes such as no other arm is capable of.

But the airplane on reconnoissance is worthless in fog or darkness, and it cannot detect forces sheltered by woods. British planes operating in constant dust above the Jordan Valley found it hard to spot enemy guns even when firing. German planes were unable to locate entire divisions of Allenby's cavalry concealed in olive and orange groves.

An able, energetic enemy is most apt to be unpleasantly active just when atmospheric conditions would conceal

his movements from airplane on reconnoissance. So it becomes necessary to rely upon a mobile ground force that can work under any and all conditions. For such a force the horse always has been, and still is, essential.

Field-Marshal Lord Haig says: "Infantry and artillery can win wars; only cavalry can make them worth winning." Wars are still won by troops in motion, and no arm can compare in mobility with cavalry; the fruit of victory can be secured only by its presence. A multitude of authorities, European and American, carry the same message. This is something for America to consider. In open warfare there is more use for cavalry now than ever before in modern war—and it is open warfare for which the American army is being organized and trained. General Pershing declares: "The American theory for the employment of cavalry is correct. In any future war on the American continent the use of cavalry will be as important as in the past."

Bred for hardiness and activity, "the best animals for army purposes are also the most valuable for agriculture, commerce and sport," is the testimony of Field-Marshal Haig.

Major George S. Patton, Jr., Third United States Cavalry, an authority on tanks but a believer in horses, says: "The horse exists in large numbers. His pattern is 'sealed' by the Creator and is not subject to constant and expensive alterations. He is not produced by the sinful rich, nor bred by corporations; he is the God-given property of the Common People. By maintaining cavalry and horsed artillery we shall continue to benefit the largest and most worthy class of our constituents, the Farmers of America."

Behind the lines, where transport was all-important, the war gave the relative merits of animal and motor a thorough, practical, test. The animal has not been ousted: rather, he and the motor supplement each other; rivalry disappears in co-operation. Which will surpass the other in service in any future war is likely to depend largely on the nature of the country in which operations are conducted, and the relative availability of gasoline and forage. The war in France favored motorized equipment; in our own mountain land, or our southwest, an extensive use of animals would probably develop. The human factors—lack of horsemanship in the general run of American young men, and the carelessness and thriftlessness of men in charge of motors,—must be taken into consideration. The advantage of motors lies in the vast tonnage moved by them and the relatively small amount of gas and oil required to keep up motor transportation, as compared with the enormous supplies of forage and equipment for animals.

This suggests the question of sources of supply. In both forage and oil the United States is practically independent. All the more reason, then, why the nature of the country over which operations are conducted will, with us, decide the preponderance of transport means. Practice may be depended upon to work out a reasonable balance.

The War Department retains a large amount of animal strength in our War Tables of Organization. At the present day the proportion of animals to men—four to one—remains about the same as it was at the time of the Civil War in spite of the present use of motors. This may be partly due to the fact that animals of the required type are always hard to get, and invariably in war the numbers requisitioned are only partly supplied. By

keeping the ratio high a serious shortage may be avoided. Nevertheless the fact is significant, and it is clear that war has not lowered the value of the Horse in open operations, nor has the motor eliminated him as a burden bearer behind the lines.



ITALIAN CAVALRY HORSES SWIMMING A RIVER.

ITALY'S REMOUNTS

ITALY drew heavily upon America for horses. Of the 30,000 heavy draught animals used, 20,000 were American Percherons, coming principally from Nebraska, Michigan, Oklahoma and Missouri. The values ran from \$215 for very heavy animals down to \$175 for cavalry and light artillery weights. The Percherons were used to haul the big 149 mm. guns, six to the gun. The Isonzo knew their worth. The lighter draught horses,

when they were not native Italian stock, were also American and the product of breeders in the eastern states. Their values ranged from \$190 down to \$175. They were of especial use on the 75 mm. guns, ammunition wagons, and general transport.

Cavalry horses almost without exception were Italian, some being bred from imported English stallions. Italian cavalry is pre-eminently a home product, the school of instruction being a development by the Italian staff to meet the requirements of Italian terrain, with its low and swampy land, its many rivers to be swum, and its many precipitous heights to be negotiated. Its unique training had justification in the brilliant cavalry work during the great retreat of 1917 along the Tagliamento and through the surrounding district. A year later came the smashing victory of Italian cavalry over the Austrians at Vittorio Veneto, which undoubtedly helped Italian experts in arriving at their conclusion that the "resolute man on horseback" will remain in future, as he has been in the past, one of the decisive factors in war. This is the conclusion, also, of military experts in other countries—France, England, Germany, America.

The response of horses to intelligent training is one of the finest, most endearing features, of the animal's nature. They recognize bugle calls and will often execute the required movement without direction from the rider. The intelligence and courage of the horse combine again and again to surprise and delight his human master. During the operations of Italian cavalry on the Corada, near Plazzo, a shell struck just behind a horse. The animal immediately bolted from the spot as if in fear; but fear it was not; it was no more than intelligent self-preservation. The shell failed to explode, and the horse, missing the accustomed shock after the requisite time had

elapsed, showed he was not panic-struck. Of his own accord he returned to his station, smelled of the shell, and then stood at attention. As high a development of calm, reasoned courage would not always be found in his human rider.

The Veterinary Service was organized in each army with a chief, ranking as colonel, and the necessary subordinates. The routine of animal care required that if an animal at the front needed but slight attention it should be treated on the spot; if out of commission two weeks it was sent back to an advance hospital; if for thirty days or more, still farther back to the second line hospital; and if for two or three months, to a base hospital. This paper theory was seldom adhered to, however. In actual practice unless animals could be cured quickly they were killed. It was not considered practical to continue a patient in hospital longer than three months.

Each army had also its biological laboratory and its school of farriery. A special pathological cabinet was maintained for the production of serum for inoculation against strangles. An apparatus was in use for the disinfection of harness from diseased horses, and another for the economical salvaging of dead animals.

The depot for beef cattle also came under the care of the Veterinary Service. All meat was inspected by veterinarians before issue to troops. In addition to cattle, some 20,000 horses, useless for army work, passed through this veterinary department and were issued as food for soldiers and civilians. Some played-out beasts with a little work left in them were presented to poor farmers, while others that would bring a price were disposed of at public sale.

Italian service was severe on horses. The total evacuations rose to 300,000. Two-thirds of these were cases

of general disease. Mange, the great curse for army horses, attacked 70,000; it was fought with the calcium sulphide bath, the sulphurous acid gas chamber, and tobacco extract. The wounded numbered 30,000, of which 10,000 died. The total war losses were 80,000.

The famed Italian Remount station of Lazio, near Rome, covers 2,500 acres and lies in a luxuriant country rimmed by the wonderfully blue Sabine hills. There the army has established a unique depot where many hundreds of horses are maintained under practically natural conditions. They roam the hills and vales of this wide area in the bright sunlight, to all intents and purposes wild horses.

In company with two Italian officers I rode out to inspect them, and they were not particularly afraid. Rather, they were filled with an exuberance of spirits which caused them, first of all, to stare at us in a defiant sort of way, and then dash off before us, a great, rippling stream, perhaps to the top of one of the grassy hills. There we saw their splendid figures against the sky in the strong breeze, with manes, tails, ears erect. In our imaginations their alarm was only affected, for well they knew their advantage over us in the open. The next moment, with tails and manes streaming in the wind, they plunged through the tall grass down the side of the hill. At its foot they encountered a broad stream of water through which they galloped straight on, sending the sparkling, far-flung water straight up, where it broke and fell, forming myriad rainbows. A moment later they were gone, but this and a score of similar pictures of these superb young animals, destined some day to be broken for the Italian cavalry, gave me an idea of the joyful life that horses may lead under natural conditions.

Of course it is not always possible to give horses free-

dom such as this, but the joy I witnessed confirmed my life-long opinion that horses, even as men, should have vacations regularly. And by "vacations" I do not mean the sort of holiday that is grudgingly given an old and decrepit horse when he is no longer capable of doing his work. Legal provision should be made that young, able-bodied horses, working year in and year out for the benefit of men, should have their vacations as regularly as their masters. In other words, they should have their vacations when they are due, and while they are still in splendid condition and able to enjoy the free interval.

It might be fair to put it in another way: That no man shall receive the best services of a four-footed workman nine-tenths of the year—services for which he pays only board and lodging—if he can not "afford" to present his workman with the odd tenth, to be his very own and enjoyed in his own way. A man who deprives his equine worker of a vacation when due, should not be allowed to own a horse, or to have any control whatever over a single individual of that noble race.

Incidentally, such a vacation, given regularly once a year, would secure greater longevity and a longer working life, which in the end would make the animal a much more valuable workman.



ALGERIAN SPAHIS.

ALGERIAN SPAHIS

THE pomp and circumstance of war were, as usual, furnished by cavalry. No combination of military trappings has yet been found to equal the thrilling effect of the mounted fighter when men and steed are in the pink. It may be as claimed, that the infantry is the backbone of the army, and the artillery the brain; it still remains that cavalry typifies speed and power. The appeal of the horse is irresistible; those who beat the drum will agree that recruiting for cavalry is far easier than for any other service.

When it comes to picturesque effect, the palm must be awarded to the Spahis. This native cavalry, recruited from the dark skinned Mohammedan sons of Algiers and officered by Frenchmen, holds an unique position. Its ancient name comes from the Persian *sipari*, warriors, and in the Turkish service of the days when the Turk

was in his glory the Spahis formed the flower of his army. From the time of the Sultan Amurath I, in 1326, down to about 1800, they were something to be reckoned with in dread. They may be accurately described as light irregular cavalry, and their numbers ran as high as 130,000. When the French wrested Algiers from Turkish control, Spahis formed portions of several Algerian garrisons; they accepted French service, and their organization was perpetuated.

With their Oriental traditions of color and costume grafted on to French military efficiency, they equally gratify the lover of display and the Simon-pure soldier. The sense of their resistless mobility is heightened by their flowing robes. Even the stoutest troops are no strangers to that feeling of "goneness" in the pit of the stomach when the Spahis deliver a charge, dashing down with all the deadly certainty of a white avalanche. Their effect on the enemy's morale is equalled only by that of their enormous curved sabres on his physique. This detail of efficiency was put to good use soon after the Allied Powers decided upon the occupation of Thessaly in May, 1917.

After much delay telegraphic orders had reached General Sarrail, commanding, to proceed with the occupation. He had concentrated his troops on the frontier of Old Greece. Included were four regiments of cavalry—Chasseurs d'Afrique and Spahis—and they were quartered at Servia, (a quaint little village owing its name to the fact that some Serbs had been held there in the time of the Emperor Heraclius.) From there they moved to Larissa, with infantry, artillery and some six-inch guns.

Colonel de Fourton, charged with taking the surrender of the Greek officers of the garrison, went to the barracks accompanied by an interpreter, through whom he

invited the officers to enter the principal mess building and lay their swords on the table. The Colonel preceded them to the mess hall, and waited. No one came. From the corridor came an excited chatter of Greek voices, but that was all. Finally the interpreter entered and said: "Mon Colonel, they say they won't give up their swords."

"I am not here to discuss it with them," Colonel de Fourton replied. "I have orders to take their surrender. If they will not give up their swords I shall go away, and it is war." (*Je me'en vais; c'est la guerre.*)

He then calmly allowed them ten minutes to decide. When the time was up he walked to his car, intending to order an advance in force against the barracks. But at that moment his staff captain, Captain Bellenger, hastened up, saying, "Mon Colonel, there's a whole battalion of Evzones escaping through the cornfields at the back of the barracks!"

"Bring up the Spahis," de Fourton ordered; and Captain Bellenger saluted, wheeled and dashed away across the half-mile grassy parade-ground in front of barracks.

The Spahis appeared—three regiments of brown-faced sphinxes, a billowing white cloud on eager horses.

"The Evzones escape!" Colonel de Fourton shouted to Colonel Duperthuis, commanding.

"Où sont-ils?"

De Fourton pointed down one of the avenues between the scattered barrack buildings. The Spahis poured themselves in pursuit. Like a white flood they closed in, around and over the terrified Evzones—and that time the war was over before it started.

When General Allenby, in August, 1918, was preparing for the great operation in Palestine and Syria which annihilated three Turkish armies and forced Turkey out

of the war, his Fifth Australian Light Horse Brigade was completed by the inclusion of the French "Régiment Mixte de Cavalerie." This was a four-squadron unit consisting of two squadrons of regular French cavalry and two of Algerian Spahis. The Spahis, with their picturesque half-Arab uniform costume added a distinct note of color to the division and were a revelation to the dun-clad Australians with whom they were brigaded. They were mounted on excellent barbs possessing great stamina, and which could march indefinitely if allowed to take their own gait; but the larger horses of the Australians often set a pace that proved hot for them. They were valuable troops wherever they could be thrown upon the enemy, for the Turks had as little relish for a cavalry charge as for anything that ever comes to troops, and charging was a thing in which the Spahis specialized.

The Spahis were too few in number to take the leading part in any of the great troop movements, yet they never failed to give a good account of themselves, or to justify the pride they take in an origin that is now vague in the dim past of many centuries.

One of my thrilling recollections of closing events of the war is of a review of Spahis by General Pershing. Most of these swarthy troops were clothed in flowing white, but some wore blue or red robes, and the head gear of all was conspicuously dignified. And every one of them was mounted on a little, white, dancing Arab. None but real horsemen could have handled those small fiery creatures, which were stamping and rearing out of pure exuberance of spirits. Wonderfully garbed Arab trumpeters sounded the signals on clear-toned bugles.

We saw them, in effortless movement, mount the bluffs at one side of the great manoeuvring field covered with grass, which stretched away for half or three-quar-

ters of a mile. There, crowning the knoll, they danced, hundreds and hundreds of white Arab steeds, each bearing an Arab rider. Then the bugles sounded—and like a snow storm before a high wind they wheeled and swept down the hillside and over the full length of the reviewing field. First, handling their horses with the left hand, they unswung their carbines from their backs, put them to their shoulders and fired point blank; then tossed the carbines into the air and caught them as they came down, moving the while at top speed. After that, all shouting strange, wild cries with the full force of their voices, they drew their great sabres from beneath the saddle-flaps, and began a “mimic warfare,” which most men would have regarded as a sentence of death. The entire spectacle constituted one of the most picturesque sights connected with Allied cavalry.

WORK AND PLAY

NEITHER remount men nor veterinarians could be everywhere, and serve all animals at all times. Much animal welfare depended on the attitude of the soldier toward his horse, and this, to the everlasting credit of American manhood, was universally fine. It was not always intelligent, but lapses could generally be charged to ignorance of animals, due to the changed conditions of living. In years now gone, every boy who could had his pony; he rode it and cared for it, and familiarity with horses was general. Association with his four-legged friend bred a love of animals in the heart of the youth. Today, the boy's wish is for a car, not a pony. His love of speed turns him from his old-time friend, and in after years an affection for animals is hard to kindle into a steady flame.

Many soldiers simply did not know how to care for their horses. Their picket lines were muddy, their animals unkempt, their harness stiff. They had not learned the art of putting weight on the brush when grooming animals, nor elbow grease into their work when oiling harness. They meant well and tried hard, but netted a poor result.

After a time men with horse knowledge were assigned to each army corps and division, to teach young American men the care of animals, and schools were established to inculcate in willing minds the proper methods. While troops were actually engaged, these men did "missionary work," and as soon as possible started instruction

again. Thus green troops were taught the art of taking advantage of cover, how to construct picket lines, how to groom animals, how to oil harness.

Many an affecting incident occurred to show that the soldier's heart was in the right place. One terrible night the officer of the day was making his rounds and heard strange sounds in the darkness beneath a tree. Turning his flashlight on the spot he disclosed a soldier rubbing the belly of his mount.

"What is this for?" the officer demanded.

"Bill's sick, sir," replied the soldier. "He's got a fierce belly-ache an' he thrashes all around when I ain't rubbin' 'im. There's no vet in the outfit an' the stable sergeant's sick."

The night was cold and rainy, but the soldier had given up his blankets for his mount, having spread them over the animal's back. He was wet to the skin and numb with cold, but his love for his horse carried him through the discomfort. His first and only thought was for the noble steed that carried him. A little later he wondered why it was that a sleepy veterinarian arrived from another "outfit," and gave Bill the dose of medicine needed to end his colic. The officer of the day had been given another opportunity to understand why American soldiers would not be denied when they went into action, and he added one humane act to another by turning out a veterinarian to care for the suffering animal.

Behind the lines in the Argonne there was an engineer regiment, the men of which undertook to handle all the stallions which had been returned to duty from the veterinary hospital. Those French horses presented a peculiar problem to American soldiers. They needed nursing along when first inducted into service, but if brought to hand properly they were serviceable enough

and lasted a long time. These particular stallions had not had the time to go through the usual training period, but the engineers used them intelligently, and inside of three weeks were giving them the hardest kind of work and the animals were getting fat on it. The secret lay in giving them light work at first and gradually getting them used to greater efforts.

In the artillery it was different. When a gun had to be moved there was a certain destination for it and it had to be there at a certain hour to open up on the enemy's lines. The animals sent in at the start could not be given sufficient rest on the way. Human lives precluded such a step, and the horse, his praises unsung, went forward until he dropped. At Château-Thierry, at St. Mihiel, and again in the Argonne, many horses remained in the traces from 48 to 72 hours in order that guns should be got into position. As time wore on conditions improved for all animals and in the final days of the drive the only ones really to suffer were the gun horses. They yanked guns into position only to pull them out again a little later and again take up the chase of the flying enemy—a chase that seemed like that for the rainbow's end.

Organization commanders who were horsemen showed their horsemanship in these moves. Animals under them received splendid care and the men seemed to imbibe horse sense and knowledge. Drivers who had been schooled in their work were careful to dismount when halted on a hillside. They chocked the wheels to ease the strain on the tired horses' shoulders, and while resting looked over the harness. Steel helmets played a part also; they were used to dip water from nearby streams and thirsty horses got a few swallows while waiting for the command "forward!" Other drivers would be filling

their "tin derbies" from a grain sack on the caisson, and holding them up to give the horses a quick lunch. If time allowed, a little hay would be added to the short ration. These little attentions helped the efficiency and comfort of the animals, and they came from the hearts of the men; they would rather serve their beasts than be idle. Battery commanders were instructed to carry a bale of hay and a sack of grain on each caisson. With this forage on hand when the guns pulled into position it was possible for all animals to be fed properly until the arrival of trains with food, forage, and ammunition.

After the Armistice was signed plans were carried into effect whereby the men gained further knowledge of horse and mule. Horsemanship schools were started in the First, Second, and Third Armies under Colonel Henry R. Richmond, who had gained an enviable reputation throughout the Army while on duty as senior instructor at Fort Riley, Kansas. He took as assistants the best horsemen in the regular service, as well as the best of those who came in to offer their all to their country during the emergency. In the Third Army, where Major-General Joseph E. Dickman held sway, interest was aroused among all officers and men by doing everything possible to make better horsemen. These classes in equitation had the desired effect.

In several divisions other than those of the Third Army, horseshows were held and deep interest was shown in all of them. Events ran from water carts drawn by one horse to six-line teams, and jumping contests. The condition of the animals and their appearance, as well as the appearance of equipage and driver, were taken into consideration.

There was one great drawback to the success of the saddle events, and that was the paucity of good cavalry

horses. There were but few in the American Expeditionary Force. When animals were rushed over from the United States recommendations were made that a certain percentage of them should be cavalry horses. But it was believed at the time that there would be no real call for cavalry mounts in France. While there was no urgent call for these lighter animals during the months of the heaviest fighting, yet as soon as the armies went into more or less permanent quarters the commanding generals turned their attention to the drill and education of troops along lines laid down in peace times. The first cry raised by the officers was for horses. Horses were needed for equitation, for polo, for demonstration purposes; and above all, for something that would be of deep and unflagging interest to the two million men of the American Expeditionary Force whose eyes were turning westward where the home fires burned bright for their return. All could not go at once, and something had to be done to keep the spirits of the men at a high level. There was but one answer: Horses.

Horses were secured from all sections of the American forces and the best of them were placed where they would do the most good. The plan worked to success, and Uncle Sam's nephews will be all the better horsemen for having had to wait a few months for the boat with just one destination—home. But it is easy to lay too much stress on the play that follows work and not enough upon the rudiments.

Home! A dusky member of a stevedore regiment, assigned along with his company to clean up the corrals in a Remount Depot at a base port, expressed the desire of most of the men in France. He was found one morning using his pitchfork with one hand.

"Better git a move on, nigger," a co-laborer cautioned

him. "Ah sees de Cap'n comin' an' he aint walkin' slow neither."

"Ah allus uses a pitchfork wid one hand," explained the other.

"How come?"

"Ah learnt real early. Pitchfork in one han' an' nussin' bottle in de udder."

About that time the Captain arrived, posthaste, having been tipped off that the Commanding General was on his way to inspect the post.

"Step lively, men," he said. "Let's get this place looking like something."

The one-handed worker spoke as he hurried by. "Cap'n, suh, Ah aint well dis mawnin'."

"'Smatter?" the officer snapped.

"Ah'm kinder droopy."

"Sick?"

"No suh, not sick. Jus' droopy. Ah aint had no letter fum mah feeawnsay foh some time an' Ah don't know if some D. D. (draft dodger) has tuk mah gal away fum me, or if de fish in de sea am readin' mah mail."

"In other words you want to go back to the States?"

"Yas, Cap'n, suh. A ticket one way, boss, kindly."

Events, grave at the time, often take on an element of humor when viewed in retrospect. One cannot but smile, for instance, when one reads that at the battle of Tanga in German East Africa the enemy cunningly hid wires and canes among the grasses and bushes through which the British were advancing. These when trodden upon lifted the lids from hives of wild bees, which poured out and caused terrible distress to the British troops.

The great importance of animals was fully recognized by our enemies, and every available animal from the largest to the smallest was used. An elephant from

Hagenbeck's Zoological Gardens in Hamburg was employed in military construction work in Breslau. Even that irresponsible quacker, the duck, was pressed into the German service, his cousin, the goose, having long since served as model for Fritzie on the march.

It appears that the Americans were ordered to take part of their transport along a certain road. All went well until they reached a certain pond. Then the ducks, which had presumably been sleeping, remonstrated, and the Germans promptly opened fire on the spot from which the quacks proceeded.

One teamster, who had been sent up with a load of shells, beat a retreat when the disturbance began. On his return his officer inquired:

"Couldn't get through?"

"No."

"Well, how far did you get?"

And the soldier replied with more feeling than respect:

"I got as far as those damned ducks!"

ALLENBY'S TRANSPORT CAMELS

'G OOM!' "Goom!" "Goom!"

This order runs from mouth to mouth down the long camel lines like the sound of distant guns, and two thousand brown camels stop chewing the cud, and heave themselves onto their long but sturdy legs. On the back of each is a pack-saddle with wooden crossbars, on which are lashed, one on either side, small metal tanks filled with drinking water. A minute later and they are striding away across the desert sand, two abreast, each pair led by an Egyptian camel driver in flowing blue. As they pass with bowing necks and measured step, one can hear the creaking of the saddles and the soft swish of the water inside the tanks, but as the long line stretches out over the tawny plain, the sounds slowly die away, and the hot dry air is silent. Presently the camels may be seen again, strung out in single file along the rim of a wadi, against a sunset sky, and looking like some old Egyptian frieze in motion. Then as they dip down, one by one, into the ancient stony river-bed, they are lost to view, and the night closes in behind them. We have had a glimpse of a fraction of the best organized camel transport the world has ever seen, without which General Allenby himself admits that he could not have hoped, either to take Beersheba, or to press on through Palestine after its capture.

It requires imagination to realize the scale on which that transport was organized; one must try to form a picture of it. Let us imagine a dark-skinned man in a

long blue robe halting the leaders of a column of loaded pack camels in the centre of Boston Common. Behind the leaders there is another pair and beyond them still others, stretching along Commonwealth Avenue, as far as we can see. Now let us mount our horses and ride back along the line. We find that it stretches through miles of city streets, out into the suburbs, through Newton, Wellesley, Framingham and Westboro, and when at night we pull up our tired mounts in front of the City Hall in Worcester, we see at last the end of the column. We have ridden past forty miles of pack camels, two abreast. Had they been traveling in single file, as they often did, we should have had to ride another forty miles to review the last of the thirty thousand animals in that long procession—the working force which Allenby used in his first great attack against the Turks in October, 1917.

And this was only part of his entire camel transport, for he had fully ten thousand more in reserve, and there were probably another ten thousand in the camel veterinary hospitals and camel remount depots.

It is probably quite safe to say that this was the largest force of camels ever gathered together since the world began, and we may pause a moment here to look into the question of why and how it came into being.

In 1914 the Turks threw in their lot with Germany, and as part of their plan they invaded Egypt from the East, and captured the frontier town of El Arish, thereby threatening the Suez Canal. The British decided that their best plan was to accept the challenge, and carry the war straight to the enemy by meeting him in the desert of the Sinai Peninsula. It may not be quite true to say that there is no water in that region, but there is very little, and the scanty wells are so far apart and



A FEW OF GENERAL ALLENBY'S FORTY THOUSAND CAMELS RETURNING FROM WATERING.

so brackish, that no large body of infantry or cavalry could hope to advance through this hot and thirsty land without carrying large quantities of water with them. In looking over the small list of available domestic animals, it will be seen at a glance that the camel is the only one adapted to the work.

So six thousand camels were ordered from India to Egypt, officered by Indian Reserve Officers, most of the camel drivers being Indian peasants called up with their animals at the outbreak of the war. In the meantime an emergency camel corps was organized in Egypt, officered by Anglo-Egyptian residents and manned by Egyptian Fellahin, or peasants, who were hired, each with his own animals, for periods of two or three months. The chief defects in this plan of hiring camels were due to the difficulty in maintaining discipline, and the reluctance of the

peasants to accompany their animals into the danger zone.

These drawbacks were not of vital consequence until early in the following year, when the enemy concentrated a large army in Syria. Then the situation became serious, and it was seen that it would be necessary to organize in Egypt a regular camel transport corps, with government-owned animals and enlisted men to care for them. From this time on this Egyptian Corps was increased until it numbered between forty and fifty thousand camels.

The Indian camels never did well. Soon after their arrival they began to die in large numbers, the chief cause of death being sand, which they licked up from the desert and which produced sand colic, ulceration of the stomach, and possibly other troubles. The animals were muzzled and for a time this checked the death rate. But the Indian camel drivers who owned the animals were not doing their best. They were anxious to return to their farms in India, and moreover they were well compensated for the camels they lost. So the Indian Corps was disbanded and their animals turned over to the Egyptian Camel Corps, then in the process of formation. Even then they did not thrive, and few if any of them survived the war. An English officer with the Egyptian Camel Corps, in explaining why they were not a success, says: "The Indian camel from the plains is not suitable for use in a sandy country, nor in a campaign where much rain or cold weather are to be met with."

The mobilization of The Egyptian Camel Corps was in itself a very big problem. It soon became evident that Egypt could not supply all that were needed. A few Western Desert (Tripoli) camels were purchased, but

the hostile attitude of the local tribes made it impossible to get more.

British officers also went into the Delta, Algiers and Somaliland, and drained these countries of suitable animals. The buyers sent out did their work in a very systematic way. In the case of the Soudan, for instance, the army would inform the High Commissioner that a certain number of camels were needed. The order would be passed on to the Governor-General of the Soudan, who in turn would notify the Governors of the Provinces. Each governor would then set his inspectors to work. The Sheiks would be notified, and through them every tribe and clan and sub-clan would be told the number of camels it was expected to deliver at a certain rendezvous by a certain date. Here the animals were examined by a veterinary surgeon, and those accepted were paid for at an advance of about twenty-five per cent above the average price. Food for the animals and for the men who took charge of them was commandeered in the same way. These Soudanese camels brought the highest price of any breed, from twelve to fourteen pounds apiece.

There were many exciting and sometimes amusing incidents connected with the purchase and collection of these animals.

When Colonel Goodchild was buying camels in Tanta, one huge beast which had just been delivered and which proved to be in "must" ran amuck in the market place and cleared it of hundreds of people. He was finally caught by an old Soudanese who put a nail through his nose and attached a string to the nail.

At Santa, a few miles from Tanta, another mad camel ran through the bivouac of a choleric Brigadier-General whose only previous experience with camels had been in the Zoological Gardens. Calling a staff officer he sent

him off with a firing party to shoot the disrespectful oont. They got him next morning, but he required so much killing that the Egyptian camel men named him Aburusas (the father of lead).

Camels bought in Algiers and Somaliland were sent to Egypt by boat, usually tethered in rows along the sides of the upper deck, with heads toward the centre of the vessel and with tails to the rail. To protect their bodies from the hard deck when they lay down, they were provided with a bed of sand. When purchased in Egypt, they traveled on foot, or in open cars on the railroad, according to circumstances; they were mobilized at Ein El Shems, where the companies were formed.

Coming in on the trains there would be a man to every four or five camels. Each of these men would have his hands full, even if he was used to camels and if the animals behaved themselves. But often the drivers were new at the work, and the man does not live who can tell what a camel will do next when he finds himself in strange surroundings. One night two hundred camels arrived in Cairo, and becoming panic-stricken at some unusual sight, sound, or smell, stampeded and dashed right into a British camp. Some of them blundered into the standing tents, arousing the sleeping soldiers who thought that the enemy had fallen upon them. Others tripped over ropes and equipment, and came tumbling to the ground, growling and grumbling as though blaming it on someone else. Of course both officers and men resented this intrusion, and with more energy than diplomacy started to "throw out" their unwelcome visitors. But the camels saw fit to protest this inhospitality, and for a time made themselves very unpleasant. Three officers who had been forced to retreat into a tent, were attacked by two camels who stuck their heads inside and made every effort to

seize and drag forth the occupants. Finally the tent was knocked down and the officers escaped while their assailants were struggling in the folds of the canvas.

Major Blake, formerly Superintendent of the Cairo Fire Brigade, spent some time in a signal box besieged by angry camels, and many others had to deal with emergencies not provided for in the "regulations." As one Egyptian medical man expressed it on meeting a friend next morning, "it was white night."

The Camel Transport Corps was made up of about twenty companies of 2,000 animals each. The balance of the serviceable camels were kept in remount depots established at convenient points; whence fresh animals could be issued as needed to make good the wastage from wounds and disease.

The personnel of each company at the time of organization consisted of thirteen British officers, most of them Arabic-speaking Anglo-Egyptians; eleven British non-commissioned officers, mostly specially selected cavalrymen who spoke Arabic; forty-five Egyptian non-commissioned officers and a thousand Egyptian camel drivers. In addition there were about a hundred and fifty grooms, saddlers and veterinary dressers, all Egyptians.

Toward the close of the war it became increasingly difficult to get remounts, and before the armistice was signed the authorities took the extreme step of calling up from Egypt, a company of two or three thousand cow camels which were really needed in the country for breeding purposes.

While much more docile than the males, these females brought with them their own peculiar problems. Many of them were pregnant and gave birth to their young on the march. On one fifteen-day trek from Sollum to Cairo, eight baby camels were born. Delightfully ab-



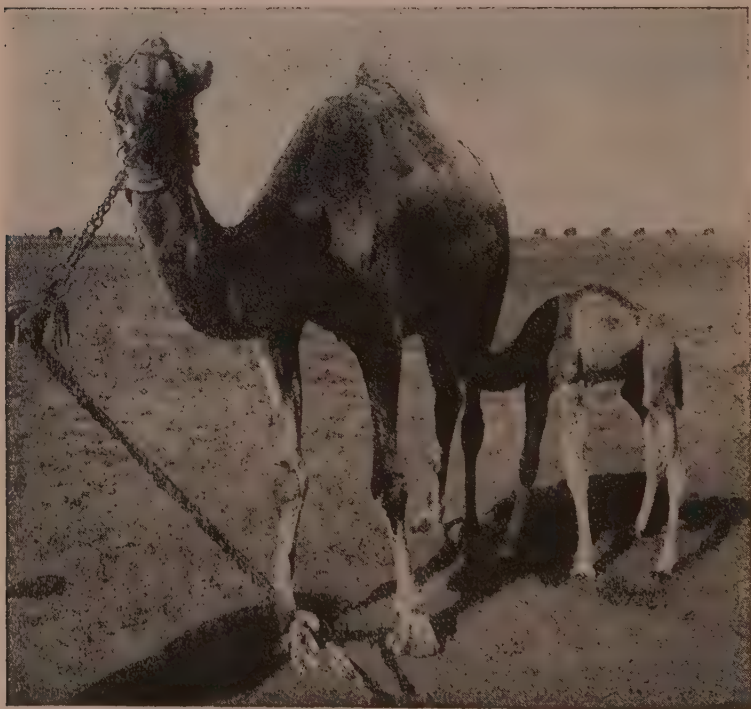
BABY CAMELS BORN ON THE MARCH.

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surd and ungainly little creatures they were, and as fearless as they were helpless. Their pyramidal bodies, covered with light-colored silky-soft hair, looked like ant hills on stilts, and it is a question whether they won the hearts of the Britishers present by their laughable outlines, or by their utter defenselessness; probably it was both. At any rate "to see one was to love it," and it is certain that baby camels born in the British army never lacked friends. Naturally their mothers could not be spared from the ranks, and the newly-born were not strong enough at first to keep pace with the column. But for all their long legs and stiff appearance, baby camels can be doubled up like jack-knives. So they were folded, placed in camel nets, and carried on their mothers' backs. They would travel in this way for six or seven hours at a stretch, then, at appropriate times and places, they were taken out, set on the ground and allowed to nurse. In this

way they lived until their own limbs became sturdy, and until, figuratively at least, they could be taken out of "the awkward squad."

It will help us to understand the uses to which the animals were put, and the problems of camel transport generally, if we realize what kind of a beast we are dealing with. The popular idea seems to be that a camel is a camel—a humped and hairy creature used in eastern countries to carry loads across the desert. It is generally supposed to be a patient animal and capable of with-



A FEMALE TRANSPORT CAMEL WITH HER BABY, BORN ON THE MARCH.

standing great hardships—the last supposition probably arising from the fact that it can live in the desert and can exist for a considerable time without water.

As a matter of fact, camels, so far from being hardy, are very delicate and have to be looked after like invalids. While they differ so much that it is not wise to make sweeping statements concerning all breeds, it may be said in a general way that they are very sensitive to cold and rain, and it is a fact that thousands of Allenby's camels died of exposure. What seems more strange is that many of them suffer terribly from the extreme heat, and there were many casualties from this cause also. Apparently they have all the diseases of infancy and of old age. If camels were human, I am sure they would be afflicted with every human ailment from cholera infantum to locomotor ataxia. I have counted up one hundred and thirty different kinds of things that camels can have the matter with them, and it is very rarely that one finds a camel which is not suffering from one or more of these.

For this reason camel campaigns, although often successful from the military point of view, have usually been disastrous from the veterinary standpoint. The losses from sickness alone have always been so great that there has been no possibility of maintaining numerical strength except by adding new camels, and if these were not available, rapid extinction of the camel transport was doomed to follow. For example when the Russian army was campaigning in Central Asia, a force under General Skobelev with a transport of 12,000 camels, returned a few months later with exactly one camel. And in the British Afghan campaign of 1879-80, which resulted in a loss of 70,000 transport animals, a large proportion of

these were camels, which died faster than they could be replaced.

The Royal Army Veterinary Corps, having all these facts in mind, very naturally realized that special organization would be required. Camel hospitals were established for the reception of the seriously sick or wounded, and a large number of veterinarians were specially trained to deal with animals which, although requiring treatment, could with proper care be kept working with their units. The question of camel mange alone called for very serious consideration, and a comprehensive scheme for its treatment was carefully worked out. Practically every adult camel in Egypt had this disease, which, if allowed to run its course unchecked, might easily have destroyed the camel transport service in less than six months. Even with all the care possible under war conditions, the loss of British camels was thirty per cent a year throughout the campaign of between two and three years—a very high mortality, but a fine record when compared with the losses sustained in previous similar campaigns.

And the veterinarians were not the only ones who had to do a lot of thinking about this vast aggregation. Heavy camel transport on a large scale was practically unknown in Egypt, and no sooner had those in charge of the work begun to put their minds on it than they discovered how much there was to learn. The questions of saddles alone presented a great problem. With the exception of a few Egyptian army pack-saddles there was none to be had. The Egyptian type made chiefly of leather was good, but no more were available. Much designing and experimenting had to be done with a view to evolving a kind of saddle at once sufficiently light, durable, and inexpensive, for practical use in a long cam-

paign. And it had to be adjustable in order that it might fit the animal that wore it, no matter what bodily changes took place on the march. A camel may start out in splendid condition with large hump and well-rounded sides, but in the course of a few weeks of rough campaigning, with hard work, trying weather, little food, and perhaps disease as well, his body will shrink almost beyond belief. Still the saddle which he started out with must fit him snug, otherwise it will move about as he marches and the friction will cause sores that may soon make it impossible to work him. Then nothing but a long rest in hospital will make him fit for service again. At last such a saddle, made of wood and canvas, and with girths of native webbing, was devised and adopted. Head halters of webbing were also devised, and blankets and feed cloths designed and manufactured. Thus, one by one, the details of equipment were mastered, and when the camels took up their burdens, they were as well equipped as careful thought and the resources of the country would permit.

The care of the animals on the march, under a great variety of trying conditions, presented many other problems. The question of watering was one of these. Camels have been watered for thousands of years, and perhaps the best known fact about these animals is that they can go for long periods without drinking. Yet no one seemed to know the best interval to allow between drinks—whether they thrived best if watered every day, every other day, or every three or four days. A few experiments, not very exhaustive, were tried, in order to learn something about this. One of these experiments was made on sixty debilitated Somali camels. They were divided into three equal groups, one of which was watered once a day, one every other day, and one every third

day. In this particular instance the group watered every third day "picked up" the quickest.

But such a variety of camels were used, and they worked under such widely differing conditions that it was inadvisable to make a fixed rule as to the frequency with which they were to be watered. Indeed, had such a rule been made, it would have been impossible in many cases to live up to it. So the matter was left to the good judgment of the officers "on the ground," who, knowing all the circumstances, did their best in each case.

Whenever it is practicable, army camels are watered at troughs, because if taken to lakes or rivers they get their feet wet, and this results, sooner or later, in foot trouble. All through the campaign watering areas were established at suitable places, where the animals could be watered, hundreds at a time. When such areas were to be used for a considerable period, more or less permanent arrangements were made. For example, at intervals along the valley of the Wadi Ghuzzeh, over 3,000 running feet of masonry and wooden troughs were provided for watering camels and horses.

Thirsty camels will drink from fifteen to twenty-five gallons each, and they usually do this in two bouts. When water was scarce, the animals were led away after they had had their first long draught. When it was plentiful they were allowed to have their fill. As a rule, no camels were taken from the troughs until all had finished, as some animals drink more slowly than others and very often these will leave when their companions do, whether they themselves have had enough water or not.

The camels began to make themselves indispensable from the moment the British troops entered the Sinai Desert on their way to El Arish. As the army marched it covered the railway construction parties, always in the

van and working with almost incredible speed. The water for these forces had to be brought from Kantara, and this is how it was done. At the north end of the Suez Canal, and on its west bank, runs a branch of the Sweet Water Canal which carries the water of the Nile to Port Said. On the bank the British had established, in 1916 a great filtering plant with a capacity of 600,000 gallons a day. This water was carried through syphons into masonry reservoirs on the east bank. Eventually it was pumped through pipes into El Arish, but before the pipes were laid other methods were adopted to supply the troops. At a special siding at Kantara, trains of water trucks were filled, twenty trucks at a time, and thence started for the rail-head, which was being advanced as fast as the engineers and construction parties could carry it. At the rail-heads the tank cars were



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CAMELS LOADED WITH FANTASSES FILLED WITH DRINKING WATER FOR GENERAL ALLENBY'S TROOPS.

emptied into great canvas cisterns, and from these were filled the little metal tanks called fantasses or fanatis, each of which held twelve-and-a-half gallons of water. Two of these, with the pack-saddle to which they were lashed, made a regulation load for a camel, and, as we have seen, thousands of camels took up their burden.

Later, as the troops advanced into country where local water supplies could be developed, large reservoirs were established, and from these the camels distributed the water to all the units within reach. At Shellal, for example, there was organized a fantasse-filling area in which 2,000 fantasses could be filled and loaded on camels every hour.

When General Allenby took command of the British forces in the Near East, the Turks occupied a line extending from Gaza, on the sea, to Beersheba, thirty miles to the south-east. The troops facing the enemy were from fifteen to twenty-one miles in advance of the rail-heads, and not only water, but food, clothing, ammunition, and everything else that is needed by an army in the field, had to be carried forward over the intervening country. The latter was frequently intersected by wadis, (the dry beds of streams,) and the steep sides of these often made wheeled traffic an impossibility. It was clearly a problem for pack animals, and, under the then existing conditions, that meant camels.

When operations began in October the beasts were in splendid condition. For months their work had been light, their humps were large and firm and their sides well-rounded. There were 20,000 allotted to the XXth Army Corps, 6,000 to the XXIst Army Corps, and 6,000 to the Desert Mounted Corps for convoy duty.

From now on the work was heavy, but for a time the conditions were favorable, and the wastage low. In the

Beersheba area vast numbers were on convoy duty, marching out daily from the rail-heads to keep in touch with the advance. It was while the troops were in Beersheba that there occurred the following amusing and significant incident—"Some one in the Intelligence Branch of the staff conceived the brilliant idea of trying to impress the local Arabs, some of whom were hostile to us, with the majesty and power of the British Empire. Accordingly, after a good deal of trouble, a few of the neighboring sheiks were induced to come into the town, and were escorted round by an officer who spoke Arabic. They were shown first a regiment of cavalry, which left them cold, as the horses appeared clumsy to them in comparison with their own little Arabs. Then lines of marching infantry were pointed out to them, and field guns, and more cavalry, and motor lorries. All to no purpose. An occasional grunt and a half concealed yawn were all the response the perspiring officer received. When a sixty-pounder gun, drawn by a 'caterpillar' motor tractor, hove in sight, they showed some signs of uneasiness, and eyed this new form of devil-carriage with profound distrust. But when they found that it could only move at a walking pace, they became reassured and lost all interest in it. The hard-working staff officer was in despair, when, towards evening, the first ration convoy of camels arrived. We had at that time about 30,000 camels in the force, and they were in magnificent condition—big, strong beasts, covered with muscle, and free from the blemishes which so disfigure the desert Arabs' animals.

"Here was something the sheiks could understand. They watched the camels winding into the town, line after line, hundred after hundred, and their eyes grew round with wonder. The first eager talk died away to an astonished silence. When all the convoy, about 1,000

strong, was in, and *barraked* in an open space, the natives turned to the officer with a volley of questions. Seeing the impression made, he told them, in an off-hand manner, that the British had more than twenty times that number with their army. The sheiks' looks politely conveyed the message that they considered him a liar. Determined to strike while the iron was hot, he bundled them all into a couple of motor cars, after some signs of panic on their part, and ran them across to Shellal, where in truth they saw more camels than they had ever dreamed of. They spent all the afternoon visiting the camps of the Camel Transport Corps, and watching the departure of laden convoys and the return of empty ones. In the evening they mounted their horses again, and rode off in the darkness to rejoin their own people. But before they left, the chief among them, acting as spokesman for all, told our staff officer that they were now quite convinced that the Ingilizis were certainly the greatest tribe in the world, and that they would advise their young men to keep on friendly terms with us and help us in every way. They were as good as their word, and we had no more trouble from hostile Arabs." *

In October the tracks were good, the weather mild and open, and the animals were as happy as it is possible for pack camels to be. But early in December, severe weather set in and the real trials of the animals began. The camels with the XXth Corps had to endure especially distressing conditions. The troops were then operating in the hills, and as the roads up the valley were reserved for other forms of transport the poor oonts were forced to take the narrow trails over stony hillsides where they cut their feet at almost every stride. Very

* From "The Desert Mounted Corps."

often there was no definite track at all. Then the rains descended,—cold rains, that chilled man and beast to the marrow, and made the mountain trails as slippery as ice. A camel's feet are admirably adapted for walking on sand, spreading out like pneumatic cushions and absorbing the shock at every stride. But there is nothing with which to grip a greasy surface, and on wet, sloping ground the poor beasts slipped and floundered, sometimes falling, sometimes straining tendons or spraining limbs, and sometimes literally splitting themselves as their long helpless limbs spread out beneath them. Many fell never to rise again; others, heavily laden as they were, lost their balance and pitched down steep places to their death. And the others got no rest. Camped at 3,000 feet on wind-swept hillsides in the cold and driven rain, there was scant comfort in even the best of camel blankets. And as if their plight was not bad enough, the supply of forage ran low and all animals were put on half rations. For weeks at a time they got five pounds of grain a day instead of ten, and the allowance of tibu was also cut in two. Not infrequently they had less than half rations, and there were days when they got nothing whatever. But, overloaded, and underfed, they worked, and grumbled, and died, and their burdens were divided among their brethren who were still able to carry on.

The convoys working with the Desert Mounted Corps in the central area were scarcely better off. They carried their loads from the rail-head at Deir Seneid, Esdud, and Sukereir to Ramleh. The country to be traversed was tilled land with no permanent roads, and the heavy rains converted practically the entire area into a quagmire intersected by broad wadies. The latter were very difficult to negotiate, especially when the sides were slippery after rain, and many animals were rendered unserv-

iceable owing to falls, sprains and dislocations. Crossing the ploughed land the mud encountered in some places was so deep, that the camels sank to their girths and had to be abandoned.

And of course added to all these difficulties, and many more, was the fire of a stubborn enemy. Even a single camel is a big target, and a large convoy is a very big one. In the main, camels behaved very well under fire, and the following incident is typical. In the operations around Jerusalem in December, 1917, the enemy fire was very destructive. One night at Kubeiba, a Turkish shell caught a group of 50 transport camels and killed, or wounded, half of them. An officer approaching the spot soon after saw torches moving about and found starving Moslems cutting up the dead animals and carrying off the flesh in baskets. The wounded camels seemed to be taking the matter very philosophically. None of them appeared to be nervous as a result of the shell explosion, and most of them were calmly chewing the cud within sight of the fallen brethren who were being carved up by "perfect strangers."

As might be expected, the casualties from all causes were very heavy. During the three months, October, November and December, 1917, the British lost 3,033 camels of which 2,090 died of exposure, 601 were killed, 310 wounded, 29 missing, and 3 were captured by the enemy.

Most of these casualties occurred in the areas above mentioned. The animals operating with the XXIst Corps in the sandy area along the coast worked under much easier conditions, and it is here we may turn aside to get a glimpse of normal life in a camel camp.

When in the early morning the animals came in, hot and tired from the night's march, they were picketed in

"lines," usually fifty in a row, and about six feet apart. Their head-ropes, which were long enough to permit them to move in comfort, were made fast to a heavier rope laid on the ground and extending the length of the lines. They were not fed until they were somewhat rested, and the saddles were not removed until their bodies had cooled lest the tightly adhering skin should come off also, causing the sorest kind of sore backs.

Then each driver would cry to his camels, "Ick-r-r!" (sit down). If the order was not obeyed promptly, it would be repeated sharply, with some additions to make it emphatic: "Ick-r-r, inzil ya ebu' kelb!" (Sit down, you son of a dog!),—and it was a stupid camel indeed that did not take the hint.

Army camels were fed twice a day when circumstances permitted. The usual daily ration for heavy burden animals was ten pounds of grain—millet, beans, crushed peas, maïse, or barley—and twelve pounds of tibu, (chopped straw, or hay). Light burden camels got eight pounds of grain and ten pounds of tibu. One half the ration was given in the morning, the other half in the evening. When salt was available about half an ounce was given with each meal.

When in a more or less permanent camp, the food was served in wooden or masonry troughs. At a large camel camp I saw in the desert near Kantara there were long concrete feeding troughs slightly raised above the sand. Into the concrete had been molded, at intervals of six feet, circular feeding basins, one for each camel. During operations, especially in sandy country a camel's rations were given on a feed-cloth, laid in a hollow scooped in the sand. From this bowl-like area the food could be taken easily and without waste, and thanks to the cloth, without danger of taking sand into the stomach. This



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PREPARING A MEAL FOR THE ARMY CAMELS. THE FOOD FOR EACH IS SERVED ON A "FEED CLOTH" TO PREVENT THE ANIMAL FROM TAKING IN SAND WITH HIS RATIONS.

danger is a terribly real one, and the Turks lost thousands of animals because they paid no attention to it.

Though not always possible it was considered wise to watch camels carefully at feeding-time to see if they were taking their food properly, and later to be sure that they were chewing the cud. Irregularity in these particulars, especially the latter, are danger signals, and matters for veterinary attention. Some camels bolt their food and these, unless prevented, are very apt to rob their more leisurely neighbors.

When circumstances permitted, regular rations were supplemented by grazing. Camels are about as fastidious as goats, and will eat the most unpromising green

stuff, including prickly and thorny things that a hungry donkey would shake his ears at. "Camel thorn" gets its name from the fact that camels are fond of it. But where an advance is being made into unknown country it is considered advisable first to examine the ground, especially the nullahs and damp places, in case there are poisonous plants with which the animals are not familiar. Familiar ones are not likely to be eaten, except by accident, though such accidents occasionally happen. A small quantity of Oleander, for example, taken in with a mouthful of grass, will kill a camel very quickly, and still more sudden is the effect of datura, which grows chiefly in the beds of dry water-courses. Grazing camels are often bitten by venomous snakes, and although their great size makes them better able than most domestic animals to withstand the poison, they often succumb to it. Their greatest advantage, perhaps, lies in the fact that after being bitten they are apt to bellow loudly and continuously until coma sets in, so that if they are under observation by someone who knows enough to guess what the bellowing means, they may be given attention in time to save their lives.

After the morning meal the next work on the regular schedule was grooming, which was done first with a scraper made from the iron bands from the bales of tibu, then with a brush made from a rope of twisted palm-leaf fibre. Grooming lasted about half an hour, and included a search for ticks, which were often found in the ears, between the toes and on other sheltered parts of the skin. Grooming was one of the few things the camels seemed to enjoy. Bathing was another, and when camping near the sea, they were bathed twice a week. They swim quite well, especially with a man to guide them, but they need

a considerable depth of water on account of their long legs.

In addition to the regular routine of feeding and grooming there was often an enormous amount of work to be done on animals suffering from one or more of the many ills that camel flesh is heir to. Probably the most serious of these among animals actually kept at work was mange. Practically all the camels had it, and the labor involved in scraping the affected parts and in applying mange dressing to the bodies of tens of thousands of camels once a week, can hardly be imagined.

It can easily be seen that life in a camel transport camp was a busy one under any circumstances, and owing to the peculiar mental make-up of the oont, there were nearly always a few extra numbers not printed on the bill.

As Kipling informs us, commissariat oonts have a remarkable aptitude for getting into trouble. They lose their heads over nothing, and at the most inopportune moments. A camel which will lie down and chew the cud close to the firing line, and with oriental, even fatalistic, indifference, view the slaughter of its companions by shell-fire, will take alarm at some slight sound, and, after breaking its picket rope, dash through a sleeping camp, doing as much damage as a cyclone and waking a hundred men out of their hard-earned sleep.

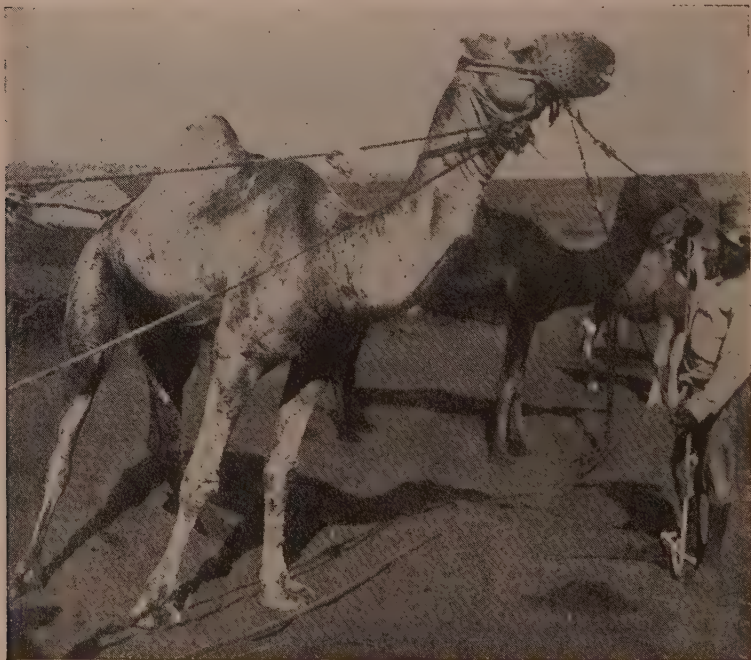
And when trouble does not come to them in the natural way, they go out and look for it. Most camels—at least most male camels, and it is usually male camels that are used in the army—are of uncertain temper; or if the temper of any of them is certain, it is certain to be bad. They are practically never affectionate, but it is only fair to say that the treatment they have received from their eastern masters through hundreds of generations has not been of the kind which generates affection.



HEAD OF A CAMEL "IN MUST." A BLADDER-LIKE EXTENSION OF THE SOFT PALATE IS PROTRUDED FROM THE MOUTH, AND ITS APPEARANCE IS ONE OF MANY SIGNS THAT THE ANIMAL HAS GONE "MAGNOON" OR MAD.

They usually tolerate the man who feeds them and looks after them, but only a fool takes liberties with a strange camel, and he is apt to wonder why he's "so frequent deceased." In the breeding season, commonly called the "symeing," or fasting, season, which usually extends from December to March, male camels are especially dangerous. During this period the animals eat and drink little—sometimes nothing for days at a time. It is then they go "magnoon," or mad, and a mad camel is a desperately dangerous brute. He manifests his madness by rushing about in an arrogant way, throwing out of his mouth a large inflated pink, or piebald, bladder, which is an extension of the soft palate. As he goes he makes a strange bubbling sound. Even when in this state of mind, how-

ever, he will not, as a rule, attack the man in charge of him, but woe to anyone else who is so unfortunate as to cross his path. He will rush upon him, seize him by an arm or leg, and then gallop off, swinging his victim in the air as a big dog might swing a rag doll. Not infrequently he will actually bite off an arm or a leg. An English officer connected with the camel transport told me that on one occasion he saw a camel attack a man, and that after the animal had been beaten off, and the victim picked up, a boot with the leg inside lay on the sand.



A MAD OR "MUST" CAMEL. NOTE THAT HE IS SECURED BY FOUR STRONG ROPES, AND THAT HE IS MUZZLED TO PREVENT HIM FROM BITING AND KILLING PEOPLE.

Another officer told me that he saw a camel seize a man by the forearm, and break both bones, leaving the limb hanging by a shred. Even if the animal simply bites into the flesh, and help is close at hand, there is great danger of blood poisoning. Unlike most ruminants, the camel has a very dirty mouth, and the long dog-like fangs with which it is equipped carry the poison deep into the tissue. Of course, mad camels are muzzled as quickly as possible, but they have to be securely anchored as well, usually with three or four stout ropes; otherwise they will chase a man, knock him down and kneel on him, or lie down on him, crushing out his life.

Almost every officer who was in charge of camels has stories to tell of adventures with these animals "in must." One told me of a bull camel which broke loose at Thame-la Wells, near El Arish, and worked terrible havoc among the camel men. The brute bit off the calf of the leg of one Egyptian, and killed another.

Serious as many of these adventures were, some had a humorous side. One frightfully hot moonlight night, a camel went mad in a British camp in Palestine, and started in pursuit of a driver. A very stout and impressive British officer, who was passing, saw the man's predicament, and attempted to help him. The camel, perhaps failing to distinguish his rank in the moonlight, turned with open mouth and charged the officer who started to retreat in a dignified manner. In spite of his dignity, however, he was an observant man, and there was something about that camel which suggested that this was no time to run a waiting race. So, shedding his clothing and his dignity as he ran, he sprinted and dodged for his life. At last he reached a dry river bed the sides of which he was much too exhausted to climb. There the infuriated camel would have had him at its

mercy had not a sergeant-major who had come to the rescue attracted the animal's attention to himself. This he did with a light prod with a bayonet, followed by a businesslike thrust as the camel swung round upon him. A bullet followed the bayonet thrust, but still the camel came on. Things might have gone badly with the sergeant had not an officer come up with several native drivers, who roped the animal and destroyed it.

Naturally much attention has been given to measures intended to minimize the danger from "must" camels. Castration is effective, but has many disadvantages. If the animal is gelded when young he never attains the strength and carrying capacity which a full-grown male camel should have. If the operation is performed after the sixth year, when the animal is adult and in the prime of life, there is always serious danger of loss.

Sometimes a compromise is made by sawing off the tips of the "tusks" which are the teeth that inflict the most serious damage. They are then rounded off with a tooth rasp and are thus rendered less dangerous.

But hard work is found to be one of the best treatments for a camel "in must." If he is given not only his regular work but all the little extra jobs that he can be made to do, he will have less time for introspection, and will actually lose less weight than if left alone to infuriate himself with his own feelings.

Nor is it necessary that a camel shall be mad in order to make itself interesting. Any loose camel offers great, if unappreciated, possibilities. Near El Arish, an officer riding to water saw a camel wandering about with his head rope hanging. He decided to catch it. The animal he bestrode was an unbroken New Zealand mare. Away went the camel at a sprawling gallop, but the officer managed to keep neck and neck, and tried to lasso

his quarry with the horse's head-rope. Now it happened that this particular camel was blind in one eye, and at the touch of the rope it swung its head round violently, striking the officer a tremendous blow, throwing him onto the horse's rump. Though almost stunned, he managed to get back into the saddle, and with great pluck continued the chase, until he succeeded in driving the fugitive into an enclosure surrounded by a wire fence. Here he dismounted, whereupon the camel charged him, head down, bowled him over like a ninepin, plunged through the wire fence, pulling it up, posts and all, and set off in the direction of El Arish village, with his pursuer following, a rather poor second. At El Arish, an Egyptian informed the officer that he knew an expert camel catcher, and running off he presently returned with a gorgeously robed Bedouin, whose bright clothing was bedecked with rings and coins. This impressive person indicated by signs that he would require the use of the mare, and its owner dismounted. After adjusting the stirrups with great nicety, he mounted, but the mare refused to move. The Arab gave her a cut with his raw-hide whip, and then she moved—upwards, sending her rider a long way in advance. When he came down the mare was not present, she was off to join the camel somewhere beyond the horizon. The officer was something more than disappointed, and proceeded to boot the Arab so vigorously that the latter ran away, leaving his whip as a souvenir. The horse was captured in a cocoanut grove a mile away; the camel was never seen again.

Then, many of the oonts have little peculiarities most disconcerting to a peace-loving groom who happens to be unfamiliar with them. Some are terrible kickers and occasionally one of them, even when muzzled and securely tied, will bring a hind foot round in a semi-circular sweep

that carries the kickee a considerable distance from the scene of action. In the grooming of a vicious camel this danger is often minimized by having an assistant hold the tail up over the back; in this position the camel, if it can kick at all, cannot do so effectively.

The bad disposition of camels caused many casualties, especially during the early part of the war. It was difficult to get a sufficient number of Egyptians of the right kind. Small farmers, who had been used to camels all their lives, would volunteer readily enough for army work during the summer and winter, but they were always anxious to be back on their farms for the autumn sowing and the spring harvesting. Many of them simply ran away, disappeared, when this homesick feeling came upon them, and their places had to be filled with laborers and tradesmen who needed much training before they learned how to feed and groom camels properly. It was during this period of training that most of the casualties occurred, for even muzzled animals had to be fed and watered. Buzz-saws and stamping machines are safety devices compared with a camel that has gone "magnoon."

Nor was it only men who suffered. Very often mad camels would attack other camels, biting them, perhaps, in the throat, or the fore leg. An animal bitten in this way was usually a subject for the hospital, and, unless the wounds received prompt and skillful attention, blood poisoning would set in, necessitating the destruction of the creature.

The camel's attitude toward life is no happier than his disposition toward mankind and his own kind. He is a grumbler. His every note is a grumble or a growl. I don't care what you ask a camel to do, his answer is always about the same. "No-o-o—o-o-o-o! Do-w-a-a-n-ter! Ain-a-g-o-o-n-ter!"—always given in a tone which

implies (and there is much truth in the implication), that he is the worst abused animal on the face of the earth. As usual, Kipling knew what he was talking about when he said:

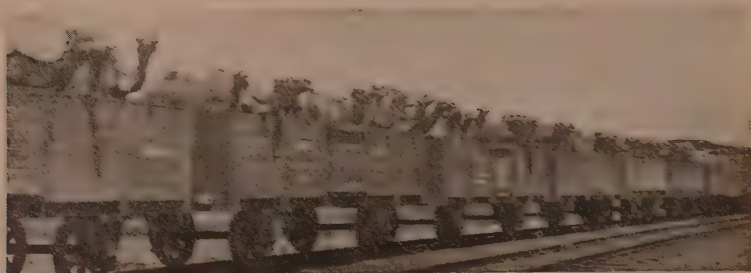
"The Commissariat camuel, when all is said and done,
Is a devil, and an ostrich, and an orphan child, in one."

When the order came to saddle up, each animal was led out to its load with rope and halter. It was then made to lie down (*barrak*), the saddle was lifted on, the load adjusted and lashed, and at the order "goom!" often accompanied by a kick, the animal arose to its feet and was led to its place in the column.

Camel transport units were classified as "heavy burden" or "light burden." As might be supposed, the former were composed of large powerful camels, and the latter of the smaller, less powerful ones. Female camels were classed as "light burden." The regulation load for a heavy burden camel was 350 pounds, including a 50-pound pack-saddle. Light burden animals were supposed to carry 200 pounds, all told. During operations these weights were often doubled. Even then the loads would not have been excessive but for arduous trails, bad weather, long marches, and scanty food.

The usual pace maintained was about two-and-a-half miles an hour. Over tracks of hard sand this could sometimes be increased to three miles, but, except in emergencies, great care was taken not to hurry loaded animals beyond the pace which it was known they could hold day in and day out. Some camels were naturally faster walkers than others. Where possible, camels were graded "fast" and "slow," and used in separate trains.

On the march a space for four meters was allowed for each pair, and any slow animals the train might contain



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A TRAINLOAD OF SICK AND WOUNDED CAMELS BOUND FOR A VETERINARY HOSPITAL.

were put in front to set the pace. It was then comparatively easy to keep the regulation spacing. Had the faster ones been given the lead, the slow ones would either have fallen behind, or been urged beyond their powers of endurance, in order to make them hold their places in the column.

During the actual fighting the camel transport traveled at night when possible. The animals were thus protected from the heat of the sun and hidden from the eye of the enemy. Darkness also greatly reduced the danger of infection with *trypanosomiasis*, which resulted in *surra* and *sleeping sickness*. The disease carrier is a species of *tabanus*, or horsefly, which, in Palestine at least, is not usually active after dusk.

A small percentage of the camels seemed to be blind at night, and some of these refused to move. Others would unexpectedly "barrak" in some inconvenient place such as a railroad track, from which they would have to be moved bodily.

A normal march was from twelve to sixteen miles, but during operations there was no rule; then, the animals, like the men, did what had to be done, and, like the men,

lived through it if they could. If, as often happened, they couldn't, they went west with little fuss.

In February and March, 1918, the camel transport was reorganized, and the size of the companies reduced from 2,000 to 1,200 animals each. It was felt that the original size was too large for efficient control, and that, as only 1,200 camels were required for first line transport of infantry divisions, that number formed a complete unit. This reduction also tended to make the organization uniform throughout, and facilitated the interchange of first line transport and convoy companies.

By this time Allenby had shown the enemy what a resolute, resourceful leader he was. With almost incredible swiftness his gallant troops, suffering from thirst and dust, from heat and cold and overwork, often harassed by murderous enemy fire, had swept like a desert wind into Judea, had captured and occupied Jerusalem and Jericho, had advanced into Mount Ephraim and Sharon, and now, toward the end of March, part of them were pressing forward for a raid on Amman.

The weather was still very bad, the tracks in awful condition, and the ground over which the camels had to work could not have been worse. The Anzac convoys marched in single file up goat tracks in the hills, over stones that cut and bruised their feet, and down steep and slippery inclines which meant injury and death to many. The 2nd Australian Light Horse Brigade, advancing up the Wadi Kefrein under great difficulties, reached Rujm el Oshir to find the tracks beyond simply impassable for anything on wheels. So all wheeled transport was withdrawn to Shunet Nimrin, where the ammunition was transferred to camels. The poor beasts, seriously over-laden, made heart-rending efforts to carry their burdens over trails that would have made difficult

going even for donkeys. Very often they could not keep their footing on the steep and greasy goat tracks, and had to be dragged, pushed, and even lifted bodily. There were many that never got through; they heaved, and staggered and strained, for hour after hour, only to die at last beneath their saddles. Nor were they the first camels to die thereabouts; the Turkish transports had been before them, and Turkish officers estimate that they lost 40,000 camels in the Jordan Valley alone. Certain it is, that the entire route might have been paved with the bleaching skeletons of the camels that perished.

And since camels were so important a factor in the transport, the enemy made special efforts to destroy them. On March 28th, a fleet of thirteen enemy airplanes swooped down and bombed the camel base at Shunet Nimrin, killing and wounding many of the animals.

At Ain Sir village there were three broad rough terraces to be crossed. Time was limited, and the going was so bad that the officers in charge of convoys had to use great care and the best of judgment in order to accomplish their marches without bringing complete disaster upon the animals. No. 3 convoy, working from Ain Sir forward with the XXth Army Corps, encountered very difficult going, which included stretches of marshy ground. Owing to the fluctuations of battle and to the fact that the work was done at night, the animals were under their loads continuously for long stretches. During the withdrawal from Amman on March 31st, and April 1st, this convoy marched for twenty-two consecutive hours. The worst part of the journey, through thick and slippery mud, had to be made in complete darkness and in a heavy rain. Most of the animals were overloaded, and moreover they were greatly harassed and

their formation broken by other army units retiring on the same single track. Of the two thousand camels doing convoy duty with the XXth Army Corps in this raid, one hundred were killed in action and another hundred had to be destroyed on account of injuries received on the march.

Throughout the fighting, wherever wounded men fell in country inaccessible to ambulances, they were carried to the rear, sometimes miles away, on the backs of camels. Those who were able to sit up, sat in specially designed chairs, one on either side; those more seriously wounded reclined in "cacolets," large cradle-like contrivances in which a man could stretch at full length, protected from the sun by an awning of canvas. Whenever I think of a badly wounded man making a long trip in even the most comfortable of these cacolets, there comes to my mind a passage from Amelia B. Edwards' "One Thousand Miles Up The Nile:" "The camel has four gaits, each designed to inflict grievous bodily harm upon his rider; a short walk which is like the rolling of a small boat in a choppy sea; a long walk which dislocates every bone in your body; a trot that reduces you to imbecility and a gallop that is sudden death. It is a punishment that one would not willingly inflict on any human being, not even a reviewer."

If a well person can thus express herself, even in fun, what must be the feelings of the wounded! Yet all distress is comparative, and rescue by this means is surely a blessed thing compared with being left to die slowly in the blistering sun of the desert, or in the icy rains of the mountains of Palestine.

Thus, Allenby's pack camels carried on, under widely varying conditions, until the close of the war. All of them suffered—many to the very limit—and more than

thirty thousand of them died. They were not lovely in disposition, nor were they especially intelligent. They were not graceful, standing or in motion, and few men had time to note how quaint and picturesque they were. But they "stood the gaff," and did their work—work that no other animal on earth could have done. They played their part and gave all they had to give. They made possible the winning of a great campaign.

THE FAST RIDING CAMELS

IN addition to Allenby's Transport Camels, many fast riding camels accompanied the Egyptian Expeditionary Forces. The Bikanir Camel Corps, the Arab Camel Corps, the Egyptian Camel Corps, and the Imperial Camel Corps, were composed of fast riding camels which carried the soldier-riders to the scene of action, there to dismount and fight as infantry.

What has been said earlier regarding the unsuitability of the Indian camel for work in the desert does not apply in the case of the Bikanir Camel Corps, a splendid native Indian regiment whose mounts, huge, raw-boned animals from a wind-swept sandy country, could travel faster and carry heavier burdens than any other camels and could stand conditions as well as any in the army.

Experience proved that the weight of the greatest loads which they could carry on the long and swift marches they were called upon to make, was 385 pounds, which included the riders. Often, however, their loads were unexpectedly increased, "for," as one writer says, "whenever a situation arose, such as the unlooked for arrival of the mail, or a sudden accident to someone's servant, the usual formula would be, 'Oh stuff them on the Bikanir camels!'"

The saddles used by this corps, unlike those used by the Egyptians and the Soudanese, were double-seated, though normally one man only was carried, since with two in the saddle nothing could be taken excepting water, ammunition, and haversacks. In an emergency, when it

was desirable to double the fighting strength of a unit, two men were carried. The greatest distance covered by this corps on one day's march of thirteen and one-half hours was 54 miles; this was done over sand and under weight of complete equipment. When speed was essential and the animals, as it were stripped for action, 15 miles an hour was about the limit which could be accomplished.

The fast-riding camels were in constant action during the campaign in the Sinai Peninsula in 1916, and later in Palestine after General Allenby had taken command of the forces. When the Desert Column was reorganized as the Desert Mounted Corps, the Imperial Camel Corps, consisting of two Australian and one British Battalion, under the command of Brigadier-General Smith, formed a part of it, and assisted in the attack on Beersheba, the advance into Philistia, and the Amman and El Salt Raids. In the Amman Raid terrible rain with unusual cold was encountered in a mountainous country, making impossible conditions for the unfortunate animals, who, like their brethren of the Transport, slipped and slid and fell down the rocky passes. "Meanwhile," writes Colonel Preston of this unsuccessful attempt, "the Second A. L. H. Brigade, followed by the Camel Corps, had been floundering up the Wadi Kefrein and reached Rujm el Oshir about 3:30 P. M. Here the track such as it was, petered out altogether, all wheeled transport had to be sent back, the ammunition being transferred to camels. It was 9:30 at night when the march could be renewed. Heavy rains had fallen for several days and the tracks were deep in mud. Rain came on again that night and continued three days with bitter cold. Under this down-pour the tracks marked on the map revealed themselves for what they really were, the beds of mountain

torrents. Each of them was transformed into a rushing torrent carrying mud and rocks in its course. Bad as they were, they formed the only possible line of advance. Pulling their shivering and exhausted animals up the track, the Camel Corps stumbled on in the rain and darkness all night. At 4:30 the next morning the head of the column reached Ain el Kehr, having taken just 24 hours to cover the 16 miles up the Jordan. It was not until 7:30 in the evening that the last of the Camel Corps got in, having walked the whole way, pulling their exhausted animals after them."

After the Second Trans-Jordan Raid in the late summer the Imperial Camel Corps returned to Beersheba. It had covered a distance of 930 miles, and by its trials and suffering had proved convincingly that camels could not be successfully employed in a mountainous country;



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A CAMEL CONVOY LOADING UP WITH STORES FOR GENERAL ALLENBY'S TROOPS
IN THE JORDAN VALLEY.

with which conclusion the camels themselves would have been in undoubted agreement.

Following the capture of Amman came the dashing and brilliant campaign which ended in the destruction of the Turkish 4th Army and the fall of Damascus on the 30th of September. Here the Sherifian troops and the Arab Camel Corps, under Lieutenant-Colonel T. E. Lawrence, "the beloved Lawrence," were in constant action. It was owing to the destructive manoeuvres of this corps that the Turks were hopelessly delayed in their attempt to reach Damascus before their retreat was cut off.

Lawrence possessed an extraordinary knowledge and understanding of the Arab mind. He was believed by them to be a prophet sent by Mahomet to deliver them from Turkish domination, and he could do what no other leader could do with these fierce and undisciplined riders of the desert. "Arabs of the Hedjaz force," says one writer, "have even entreated to be allowed to throw themselves before Lawrence's horse in the manner of the Jugernaut victims." One of the activities in which this Corps, under Lawrence's leadership, excelled was the interrupting of railroad communication. We read of them tearing across the desert to charge the train, robes and head-dresses flying, without regular formation, without any distinction between officers and privates, all yelling, and with a most indiscriminate firing of musketry into the air.

The presence of these wild riders, on their camels or horses, in any situation or engagement, seems to remove it from modern warfare, and to place it in days old as life on the desert. Once, during a German air raid they barrack their camels, dismount, and sit, each man by his beast until the storm has past. But the enemy had only withdrawn for more bombs, and during their absence,

the Camel Corps slips into a wadi, there to sit immovable as the black lava stones, and so conceal their presence from the searching planes. It is a story of the Arabian nights over again, and, as in that ancient story, the black stones come to life and worry the enemy. They remain among the lava for several days and nights, coming forth after it is dark "to catch and kill a passing train," and once by day to destroy a bridge and blow up a great length of rails. They harry, they retard, they berate, the Turkish forces, and are the second detachment to enter Damascus, the "Great City" of the Arabs, once more in their hands after four centuries of enemy domination.

On the wall of rock which skirts the Dog River not far from Beirut are the inscriptions of the four Empires, Egypt, Assyria, Greece, and Rome, the earliest and the greatest of the oppressors of Israel. And above these age-worn characters are carved in the lime-stone rock the simple words which celebrate the latest victory of an army in this land, so often conquered, and so long oppressed:

The British Desert Mounted Corps
Aided by
The Arab Forces of King Hussein
Captured
Damascus Homs Aleppo
October, 1918

Of those who read this inscription in years to come, many will bring to mind the fame of that great general whose genius conceived and organized this triumphant effort; many will think of the gallant men, the unknown soldiers of a mighty Empire, who fought, suffered, and

died in the cruel desert drought and heat, the bitter mountain cold.—How many will give a thought to the thousands of dumb creatures who likewise fought, suffered, and died,—the high-strung, sensitive horses, the dogged, persistent mules and donkeys, the toiling, struggling, complaining, indispensable camels, without whose aid those words could never have been inscribed upon that ancient rock?

MULES

PRACTICALLY all persons who worked with the army mule—as a draught or as a pack animal—have a good word to say for him. If they worked long with him, they remark on his freedom from disease, his steadiness under fire, his willingness to work for long hours under the most trying conditions of weather and footing. Even his failings and vices they find reason for, and justly forgive. A really vicious mule is one that has been badly treated: he loathes the flicking of a whip, and will swiftly brand with a skillful ‘off-hind’ anyone that is so ill-bred as to flick one in his presence. Quite a sermon might be preached on the subtleties of a certain epitaph which reads somewhat as follows:

“Say some prayers for Michael O’Toole—
“He borrowed a feather to tickle a mule.”

Any mule-psychologist would tell you, without a moment’s hesitation, that a mule, even one with his back turned towards you, can not only perceive your slightest action and forestall it, he can even read your thoughts and intentions—and forestall them also! Hence the untimely fate of Michael O’Toole.

As to whether you get along nicely with a mule, or not, is largely a matter of mutual confidence. Please observe that I said *mutual* confidence. It is a fine thing—a noble thing, perhaps—to have complete confidence in a mule who has none in you. If you have it, encourage it in every possible way, but take the advice of a well-wisher, and

don't get within leg's length of the mule, unless by proxy, until he shows unmistakable signs of reciprocity; then go in your football togs. I have reason for telling you all this, because during the war I had a friend, a British officer in France, who almost fell in love with a mule. His trust in the animal was simple and complete. Then one day he was sent home to England to recover from a severe wound in the head. My friend said that the mule had kicked him mistaking him for another man. But within the next fortnight the mule made three similar mistakes, and as in each case the wound was bad enough to necessitate the patient's going home, the mule was given the name of 'Blighty,' which he carried to the end of the war.

As I said, however, if you once establish mutual confidence, all will be well. You may even remove your friend's hind shoes, and that is saying a great deal, for mules are conservative and very suspicious. Walk down a line of them, not too close, and observe their distrustful eyes, and their expressive, unfriendly ears. Note, too, that several of them keep their hind legs just where they can get at them handily. Now, if you are wise, you will move a little farther back, and if you have a whip about you, lose it at once. Verily, no man can tell how far a healthy mule can kick. But mutual confidence can be established between men and mules, and it was so established thousands and thousands of times during the war, especially in Italy and France. As the English developed the greatest horse-masters of the world, so the Italians developed the best mule-drivers. The almost superstitious confidence which the Italian had in his mule has few, if any, parallels in history. Nor was this confidence restricted to the enlisted men; the officers shared it. "The mule won the war for Italy," remarked one Italian officer



ITALIAN PACK MULES IN THE ALPS.

to me. "Had Italy been deprived of her mules," said another, "the war was over for Italy."

The mule is a hybrid, being the offspring of a male ass and a mare. He inherits the large head and ears and the small hoof of his sire, and the bodily shape and size of his dam. The mule is usually sterile. Having been evolved through the inventive ingenuity of man, he retaliates, as it were, by making it as difficult as possible for man to comprehend him. The negro has a natural aptitude in this direction. The man in direct charge of the animal must learn to understand its personal and racial characteristics, but more important still is it that the men higher up shall have a clear knowledge of the capabilities and the limitations of mules in general. And here let me

say that the failure of the army mules on certain fronts was due, not to his unwillingness or stupidity, but to the attempts to force him to do work for which he is physically incapable. No one would enter a mule in a race against thoroughbreds, and yet he has frequently been required to serve in the Artillery or Cavalry transport where the competition gave him little better chance of success. It may be that the orders given in these cases were the best that could be given, all the circumstances being considered. But the fact remains that, though a mule is said to be capable of walking a mile an hour faster than a horse, he cannot be galloped; nor should he be placed in direct competition with the horse. If pushed along faster than their natural gait, mules soon lose condition and become almost useless. The Mosaic injunction, "thou shalt not plow with an ox and an ass together," might with advantage have been observed in spirit in the case of mule and horse. Far be it from me, in my ignorance of military matters, to criticize any



ITALIAN ARTILLERY TRANSPORTED BY MULES.

orders relating to the mule; what I have said is merely intended as a possible explanation and justification of his few failures, in view of his overwhelming successes.

Perhaps the mule's most spectacular triumph was achieved on the Italian front. The character of the country in which much of the Italian fighting was done accounts in part for his popularity and prestige. A superb pack animal, he was at his best on those steep, zigzag, trails leading to the Italian stores or gun positions. Heavily laden, but not pushed beyond his natural speed, he displayed all the sure-footed caution for which his breed is famous. His conduct during those years of terrific fighting in the Alps forms one of the most interesting narratives of the war. From the magnificent specimens of Poitou and the splendid imports from the United States, to the mules from Spain and the thin, ill-tempered animals from Sicily, they one and all endeared themselves to the soldiers, who well knew to what a degree they were dependent on their beasts. There was not a single division in the Italian army that could get on without the mules; even the cavalry were obliged to employ them in their lines. And a soldier exercised as much care in choosing a mule as he would have done in the case of a wife.

At first it seemed doubtful to the Italians as to whether the mule would accommodate himself to a soldier's life; but they were quickly undeceived, for the mule proved to be intelligent, patient, and easily satisfied, requiring only a good leader and a good mate. Some mules, it is true, are a little difficult to satisfy! Generally speaking, the will of the driver must be stronger than that of the animal. Above all, he must be just. Moreover, he must know his proper place, and keep it; to do so is the test of the highest skill. The mule, for his part, needs to be

governed and guided, and very quickly learns to know his driver, to whom he becomes much attached if that driver happens to be the one that suits him. A mule never kicks his driver. Once appointed, the driver was never changed, unless it were unavoidable, for men and mules grew to know one another. The mules did just as the men did,—they hurried, they went slow, they exercised care.

The muleteers, for their part, were a people in themselves, always dirty in appearance, looking as if they belonged to a different army. Men of thirty or forty years of age, mountaineers for the most part, they understood mules, and became very fond of the beasts in their charge, talking to them, especially at night, and confiding all the home news to their long ears. And the mules listened with great attention! Many a scrap of bread was saved for the mules, and many a time when feed ran scarce did those devoted muleteers lead their charges out to forage under cover of the night. For the most part, however, the feed consisted of dried grass and oats morning and evening, and the regularity of the supply was jealously guarded.

With the exercise of due care and common-sense, excellent results may be obtained. Indeed there is no animal who more surely repays all that is done for him. With well-disciplined, well-cared for mules, marches of from fourteen to sixteen hours duration were on many occasions accomplished over the most difficult and dangerous paths. The skilled leader in the Italian army could estimate exactly what work the mules could be depended upon to accomplish. The best and strongest mules were employed in carrying cannon. There were twenty-four mules to a battery, each battery being divided into groups of six. Each group carried a cannon, the parts being

distributed among the different animals, each one of whom in turn was called by the name of the part he carried. The loads were borne on the back and on either side, and fastened to the mule by means of a frame with straps. Minute care must be exercised to adjust the harness with nicety and secure a true balance, for any maladjustment causes great fatigue, and the animal must be guided with the utmost skill to avoid lost motion and swerving.

There were two hundred, or more, mules with every battalion of Alpine troops, one man to each mule, to every ten a corporal, and to every twenty or so a sergeant. A mule could carry three nets full of bread, one on each side and one on top, with fifty loaves in each net, one hundred and fifty loaves all told. They could carry between ninety and one hundred kilos of meat. Water they carried in bags of rope, or cord, which swelled and became water-tight. But whatever the official load, no doubt the verses written on the mule of the western front applied equally to his brother on the Alps:

"The pack he carried on his back might like the Jungfrau soar, but there was always room for just one pan or bundle more."

The real affection with which the mule was regarded by his human fellow soldiers is well illustrated by an anecdote told by an Italian officer. One day he noticed two soldiers looking very sad, and called them to inquire the reason. They replied that they had just received a letter from a comrade in hospital, asking for news of his dear friend, Lucia, his mule, and they were sad because Lucia had been accidentally killed whilst transporting ammunition.

On another occasion an officer received orders to retreat with his column from Monte Tomatico by the short-

est route, as the position was surrounded. In case the mules could not follow, they were to be killed and the cannon destroyed. The officer, who loved his mules, received the order with sorrow. Finding an opening, however, through a gorge, he led his column in, although there was no sign of a path. The column was a long one, three hundred men and one hundred mules, and the march was fraught with difficulty. Had a single animal fallen, it would have precipitated both men and mules into the deep ravine below. Yet, though the march lasted over sixteen hours, it was accomplished without accident. "That night I had the sensation," wrote the officer afterwards, "that the mules understood the grave responsibility which rested on all of us."

The sick mule, the wounded mule, or the mule who had overstrained himself, was given the most careful attention in the little veterinary hospitals constructed of boards, many of which were placed near the mountain tops. About ten per cent. of the entire number lost their lives from one cause or another, and of these about one-half perished by falling down crevices or over cliffs, especially at Monte Nero. At Baita Pastore, at a height of 2,200 metres, in the zone of the Ortler Massifs, a mule loaded with camp caldrons for soup for the soldiers slipped in crossing a difficult path, and fell into a gorge with a drop of 300 metres. Sometimes entire transports were swept away by avalanches. In cases such as these nothing could be done, but wherever there was a chance, rescue was attempted.

The comradeship that existed between men and mules is touchingly illustrated in the expressions used by each driver to encourage his beast. "Coraggio, povera bestia!" he would call, "tutto per la patria." At another time it was "Forza!" which may be translated by the

good American expression, "Put some pep in it!" Again it was the ancient war-cry, "Avanti Savoia!" Finally it was "Vinceremo!" or "We'll win!"—to which the mule heartily agreed. And the mule was right.

The Italians have always held a high opinion of the animal which was destined to become such a valuable ally in the Great War. In 1908 they owned 388,000 mules; ten years later, before the war was over, they owned nearly half a million. During the four years, 1915-18, having had previous favorable experience of the mule in the South African War of 1899-1901, the United Kingdom purchased from this country no less than 197,215 mules, value \$39,122,652.00, which amounted to considerably more than half the total number of mules exported by the United States during that period, viz. 343,271 mules, value \$68,372,715.00. Be it noted that in this vast total is not included the number of the mules accompanying the American Expeditionary Force, nor the still greater number that remained with the army at home. In the year 1912 the United Kingdom had bought one mule from the United States, and this specimen apparently proving a success, the three Kingdoms had ventured on the purchase of no less than three mules the following year. But it took the world cataclysm to demonstrate to our cousins of what sturdy stuff the mule was made, and the opinions they have left on record fully corroborated the highest praise ever bestowed by the Italians. Thus Brigadier-General T. R. L. Bate, of the British Remount Commission in the United States and Canada, having had experience of both horses and mules in a battery in two theatres of the war, wrote that he would "unhesitatingly say that if he had the remounting arrangements for any future war, mules would supplant horses to the greatest possible extent."

*British Official, London*

BRITISH ARMY MULES ENGAGED IN ROAD-MAKING ON THE WESTERN FRONT.

The British estimate of the mule has never been better expressed than it was by an officer of the Royal Artillery writing in "The Yorkshire Post," under date of Monday, 13th January, 1919. Deeply versed in the ways of the mule, having handled hundreds of them, he tells of the first—and last—kick he ever received, and then continues in this strain:

"Forthwith, oh, pictorial traducer of the ancient and noble tribe of mules, banish from thy confused mind the baseless assumption that the mule is a humorous species of wild animal—introduced by tens of thousands into modern warfare merely to add a touch of variety to an otherwise dreary existence—that spends most of its time refusing to be harnessed up, eating tin-cans and saddle blankets, kicking captains and corporals, stampeding in masses at the hint of a sneeze, and behaving generally like a professional 'knock-about' in a music-hall. Take a

mule reasonably young, treat him kindly, train him tactfully, let him get accustomed to one man's voice, and he will become the most tractable, affectionate, and lovable animal on the face of the earth, besides one of the most effective in draught. Practically all mules incorrigibly fractious are old ones, and in ninety-nine cases out of a hundred they have been brutally treated.

"A mule, while he never forgets a kindness, never forgives an injury. In the days of his youth he may be timid—'windy' is the driver's word—but he is quickly responsive to the gentle touch, the caressing word; and quiet, unfussy, fearless attention on the part of his master will evolve confidence and a steady poise out of frightened unmanageability in a magically swift transition, so that it is no unusual thing to see a driver followed about by his mule like a faithful dog, and nosed and nudged in loving friendliness. In the stable at feeding time I would walk with a greater sense of security behind an uncharted line of army mules than behind a line of artillery horses. If I were in the veterinary service and of indolent habit, I should infinitely prefer the supervision of a mule unit to that of a horse unit. A mule rarely goes sick; thanks probably to his more capacious stomach, he remains almost entirely free from colic—that common and dangerous affliction of the horse on active service; aggravating diseases of the foot as rarely trouble him; and he is not subject to the ups and downs of condition which make the care of horses in war time a perpetual anxiety.

"Indeed, for endurance under conditions of sustained exposure, the horse is not in the same street with this hardy beast. In the Vimy battles of the early part of 1917, I was detailed to assist a battery commander for a short time with about twelve teams of mules in the supply of ammunition to the guns. The work was fast, severe,

under intense pressure—for gun ammunition was fired away like rifle bullets—the roads and tracks were in a deplorable state of slush and mud, and you may remember that for several days the battle raged in the worst blizzard experienced during the war. Horses and mules alike were in the open on a bleak hillside, up to their bellies in snow and half-frozen mud, and horses perished like flies. You could count them nearly by the score on the road—fanciful word!—and the battery to which I was attached lost seventy fine horses from exposure alone, apart altogether from shell-fire. One bitter morning eleven were reported stone-dead in the lines. Yet throughout that dreadful time not a mule died, not one went sick, not one became ‘ineffective,’ and in the end it was the mules that got the battery safely out of action—a truly remarkable achievement. Within a month those magnificent mules,



GETTING TWO MULES OUT OF A SHELL HOLE. MAUREPAS, DECEMBER, 1916.



BRITISH TRANSPORT MULES WITH INDIAN DRIVERS IN MESOPOTAMIA.

which had certainly lost some of their weight, were as sleek and vigorous as ever, not a penny the worse.

"The proof of the pudding is in the eating, and if I could have any say in the matter, I would substitute mules for horses in every battery in the British Army. At Paschendale—I am never sure of the spelling of that odious word—in the autumn of 1917 millions of rounds were delivered to the guns on pack animals, over ground that was hardly passable, even for infantrymen, and that gradually became transformed into lakes of impure mud, many feet deep. Three-fourths of the work was accomplished by mules. Few horses could have withstood the strain, and not many did stand it. Hundreds, if not thousands, of mules met their death by drowning or by

shell-fire, but their unwavering discipline under bursts of intense fire, and in face of the tremendous roar of our own guns along that terrible track from Wiertze to Kansas Cross, and beyond, was wonderful to behold. Their staunchness, their strength, their blind trust in their stoic drivers—as brave and uncomplaining as they—their silent suffering, the poignant agony of their dying struggles in cavernous shell-holes filled with slime and water, the pain of having to shoot many a section pet to put him out of his misery—these are memories which will keep alive in one's heart an abiding admiration for so devoted a 'friend of man'."

The prose-poet also pays his tribute, which is none the less deep and sincere for the lightness of the touch:

"Though gas gave out and motors stopped, And wagons lost their wheels,

No power but death could halt the swift Machinery of his heels."

Captain Sidney Galtrey in his interesting book, "The Horse and The War," published in 1918, pays a series of wonderful tributes to the mule. Even at the risk of reiteration I feel that I should quote at least one or two short passages. "Often and often," writes Captain Galtrey, "the mule has done what the horse has failed to do. He has survived and outlasted him, and, maybe, has shown his perversity by apparent enjoyment of the awful din of battles, the deep mud and piercing cold of France, or the heat and flies of the East. His temper and constitution have remained whole, while the specimens of his mother's branch of the species have cracked and fallen by the wayside. Given his liquid refreshment and his humbler rations it takes a lot to put a mule out of action. He has even kindled enthusiasm among ardent horse-lovers who were once prejudiced against him and de-

spised the donkey in his outline and demeanor. So in time they have come to say: 'Give us mules for this job of war, rather than horses.' A strange and yet true conversion!"

Captain Galtrey gives interesting figures as to the proportion of disease during war time as between the horses and the mules. Mange, for instance, attacks four horses to one mule. In the case of debility there are four and a half horses to one mule, and for digestive diseases eight horses to every mule. Cellulitis is as four to one, and ophthalmia as two to one. Lameness is about equal, and it is a curious thing, he adds, that mules seldom recover from bone lameness.

Our own Government paid a handsome tribute to the work of the mule for the American Army in an official publication issued by the Quarter Master General in 1920. "More than 45,000 of him were engaged with the army abroad, and more than 100,000 with the troops in the United States, and while there was much hee-hawing, kicking, balking, biting, and other mulish tricks, as might be expected, the army mule lived up to his established reputation for enduring, sacrificing, and dying like a soldier." The *Boston Herald*, commenting on this official testimony, remarks: "Higher praise could not be rendered."

A cloud of witnesses bear testimony, in all the languages of Babel, to the worth of the humble mule. He has his little drawbacks. He loves to roll, especially when he has just been groomed and the ground is muddy. Like many an excellent man and woman, he loves to eat, and it is said that with palatable food before him he will eat till he bursts. In view of the wide-spread impression as to the catholic nature of the mule's appetite, which is in so many cases quenched with unsuitable food, I have

sometimes wondered whether the bursting was not caused as much by surprise at the sight of good food as by over-eating. He won his way into the hearts of our allies: I must recite just one incident of how he—or, rather, in this case—*she* captured the affections of the doughboys. I quote from *The Boston Herald* of November 22, 1920:

“... Mademoiselle Verdun was foaled April 16, 1918, just four hours after her dam had finished hauling shells for Battery E of the 15th Field Artillery. Before she was a month old she hiked thirty miles in two days, and was in the thick of every subsequent major offensive pulled off by the Second Division. Later, for good measure, she hiked a hundred miles to the Rhine, keeping watch with the rest of the army of occupation.

“Then the question arose as to how she was going to be brought to the United States, because of an ironclad rule which had been issued against bringing animals back. The boys of Battery E decided that they had not fought



FRENCH MULES CARRYING HAY FOR THE ARMY ANIMALS.

in France for nothing, with the result that Mademoiselle Verdun, mysteriously missing for some days, blossomed forth at Quarantine on this side of the Atlantic, too late to be sent back to France. A relentless veterinary officer thrust Mademoiselle Verdun into quarantine, but she was later freed and became monarch of the regiment at Camp Travis."

And now let the long-suffering mule say a word for himself, which he does in the form of a poem signed "L. L. L. L., Base Indian Remount Depot, B. E. F., France," and entitled

MUSINGS OF A MULE

"I am only a common or garden mule
Who was bred in the U. S. A.
I was born in a barn on a western farm
Many thousands of miles away
From where I am munching a Government lunch
At Great Britain's expense today.
With dozens of others I knew, and have seen,
In my Little Grey Home in the West,
Where the grazing was succulent, luscious and green,
And Life was a bit of a jest,
I have sniffed the salt breeze blowing over the seas
And I've landed in France with the rest.

Many months at a time I was up on the Somme
In the rain and the mud and the mire:
We were "packing" the shells to the various Hells
In the dips of the vast undulations and dells
Where the field guns were belching their fire.

It was very poor sport when the forage ran short
First to eight and then six pounds a day,
But we managed to live on the blankets they brought,
Though blankets I now think, and always have thought,
Are but poor substitution for hay.

Now the life in a paddock according to men
Is a sort of a beautiful song
Where animals wander around and can squander
The time as they wander along,
With nothing to worry them, nothing to do
Except for food intervals daily; but you
Can take it from me they are wrong.
For paddocks are places conducive to thoughts
That settle unbid on the brain,
And often I find them to follow a kind
Of a minor-key tune or refrain.
As I doze for an hour in the afternoon sun
Or I stand with my rump in the rain
I dream of the barn on my Illinois farm
And I long to be back there again."



FRENCH DONKEYS AND THEIR DRIVER.

DONKEYS

THE blood relations of the mule, the little long-eared donkeys, also marched, and worked, and died, with the patience for which they are famed. Perhaps the best known, that used largely in the Western theatre of war, was the ass of Poitou, a place which has long been famous for its fine breed of donkeys. The Poitou jackass is from fourteen to fifteen hands high, with an enormous head, and ears so large that their owner, instead of holding them upright, finds it necessary to keep them in a horizontal position. From these asses are bred the equally famous mules of Poitou.

The ass, plodding and steady, would go until he dropped. He carried a heavy weight, varying from one hundred to two hundred pounds, and sometimes the load was so bulky that the donkey himself could scarcely be distinguished. Donkeys were used for pushing and pulling,

and as pack animals, and they were cared for by men too old for the trenches. One man was assigned to six donkeys on the plains, and to two or three in the mountains. Donkeys served with all the Allied armies in France, and made friends with the soldiers wherever they went. Sometimes the men took them into the dug-outs for mutual warmth. Long strings of them might have been seen trotting through French villages and out into the country on their way to the battlefields, with panniers loaded with food for the blue-clad men at the front. And because they were small their drivers could lead them into the trenches, and distribute the rations as they went along. The donkeys carried ammunition also, and worked chiefly at night.

On one occasion a British officer met a French donkey transport, and noticed that one little fellow had no ears. His driver explained that a bursting shell had cut them off, and rendered the animal stone-blind as well. The officer passed his hand caressingly over the pathetic little face, and exclaimed, "Oh, you plucky little devil; you deserve the *croix de guerre*!"

The Italians used donkeys chiefly for mountain transport, and employed not less than 100,000—ceded by peasants, farmers, and landowners at a price of about 500 lire apiece. The Italians groomed them carefully in the morning, and they were well fed with a ration of hay and barley twice a day. The donkeys were quartered in barracks warmed in winter by little stoves. They proved extraordinarily hardy, rarely going to hospital except when galled by ropes.

An Italian officer told me that one of the most comical incidents he ever witnessed occurred in the Alps as a train of ammunition donkeys arrived at one of the peaks. It happened at that very moment that the Austrians

opened an intensive bombardment, and the startled and excited donkeys, with ears cocked forward, trotted over to the edge of the precipice, and, looking towards the enemy, began to bray in chorus. It sounded like derisive laughter, and the Italians waved their hats and yelled with delight.

Donkeys are cautious little beasts, but sometimes their very caution was their undoing. When the French under Sarraill were retreating down the valley of the Vardar before superior forces of Bulgarians, they had to cross a narrow bridge over a roaring torrent, at the sight and sound of which many of the donkeys balked. There was not a moment to coax or to argue; they were simply pushed over, packs and all, into the rushing water twenty feet below, to make way for the men who had to get over in time to blow up the bridge in the face of the pursuing enemy.

In the Near East eight thousand little donkeys, carry-



FRENCH DONKEYS CARRYING FOOD TO THE TRENCHES.

ing baskets of stone on their backs, helped General Allenby to build his roads along the front from Jaffa to Jericho. Here also these small, but sturdy, creatures carried heavy weights—two boxes of biscuit, weighing eighty or one hundred pounds each, jam, bully beef, grain. They transported camp equipment for the Egyptian labor corps, cooking outfits, blankets, etc. Thousands of the big brown Cyprus donkeys were used at Saloniki, and Egypt and the Sudan supplied donkeys in vast numbers for the Near Eastern theatre of operations. The Egyptian pack donkey, which varied in color, was a useful creature to be bought for £6, whilst the large handsome white donkey, known as Hassawi and bred chiefly at Asiut fetched ten times that amount. The Sudanese donkeys were very small and hardy, and could go for twenty-four hours without water if necessary. They were worth just under £3. Originally four hundred donkeys had been sent up from Egypt to work in supply convoys in Judean hills, and had carried supplies to the lines over country where roads did not then exist. An interesting account of how, later on, donkeys, saved the day is given in "The Desert Mounted Corps:"

"Ammunition and food were running short, and fresh supplies had to be sent up to El Salt before morning. No vehicle could get up the Umm el Shert track, and as the journey had to be done in the night camels were equally out of the question. Each of the cavalry regiments had at this time a few donkeys which were used by cooks and batmen, who did not usually accompany their units into action. About two hundred of these were collected at Ghoraniyeh in the evening, loaded with ammunition and stores, and sent off in charge of a subaltern of the gunners.

"Marching all night, they succeeded in reaching El

Salt, which was then being hotly attacked by the enemy, on the morning of the 2nd, delivered their sorely needed ammunition, and returned safely to Ghoraniyeh. The distance covered on the double journey was forty miles, over an appalling country, and with the prospect of stumbling into the enemy at any moment."

I shall conclude with an extract from some charming verses by Cecil Brown, entitled:

THE ASS OF PALESTINE

"... the subject of my verses is quite unknown to fame;
"He gets all kicks, no ha'pence, and still he plays the game.

"If there's anywhere a hero who deserves a happy end,
"Who's faithful as he's plucky, a slave and yet a friend,
"Who never shirks his duty, be it rain or be it shine,
"It's that living pocket Hercules, the ass of Palestine."



AUSTRIAN CANNON TAKEN FROM THE BULGARIANS AND DRAWN BY OXEN.

OXEN

ON the Italian front a picturesque touch was furnished by the oxen, of Roman, Emilian, and other breeds, which were employed in great numbers. Their weight averaged from 1,200 to 1,500 pounds, and their great strength made them available for the transport of large artillery pieces and all sorts of heavy material,—and sometimes, unofficially as it were, of light objects also, as when the soldiers placed their knapsacks on the patient necks of the beasts. In Italy the oxen were kept in concentration camps near rivers, where they could bathe and water in sheltered spots. They were washed with water applied with straw, and fed on grass and hay, and sometimes a little grain when work was heavy. Special officers and men tended them, one soldier for each team. Working mates always evinced a decided affection for

one another, disliking much to be separated after having worked together for any length of time. During cannon fire the oxen appeared to be perfectly phlegmatic, but the sight of others of their kind lying dead produced unmistakable signs of fear and a reluctance to work. When themselves wounded they behaved quietly, and proved to be exemplary patients in the Blue Cross hospitals.

Oxen were used on many other fronts—as pack and draught animals in France, for instance, and in the Serbian transport. Hardworking, faithful unto death—and death carried them off perhaps by twenty at a time when a shell exploded in their midst—the oxen can not be said to have led an easy life at any front; but the hardship, whatever it may have been, of their lives in France, in Italy, in the Near East, paled into insignificance when compared with the terrible sufferings of oxen in the campaign in German East Africa. The nature of the country was such that in ordinary conditions animals would



FRENCH OXEN USED IN ROLLING STONE ON A MILITARY ROAD.



BRITISH OXEN TRANSPORT IN GERMAN EAST AFRICA.

not have been required to work there. From Mombasa on the coast the railway ran through Voi, a distance of about one hundred miles, and thence onwards, north-west, through British East Africa to Lake Victoria Nyanza. From Voi, however, to the base of operations around Mount Kilimanjaro, the trail lay over the worst kind of roads, and through bush that at times seemed impenetrable. All Nature combined to cast obstacles in the way, and to the suffocating heat of the African jungle, but two hundred miles south of the Equator, were added the terrible discomforts of matted undergrowths, thorny bushes, and quagmire. Yet with the fortitude for which they have been famed through the ages, the oxen continued to haul the British transport,—over the plains in clouds of dust, through the bush with its thorns, tangle, and mud,—hailed until they dropped.

For deadly disease lurked everywhere. The ravages of anthrax and rinderpest are well known, but preventive measures were taken through inoculation; and the veterinarians at the base were careful to select, for the meat supply and for trek purposes, only the beasts that were free from both these pests. Their task was rendered more difficult, as the animals were collected in areas where East Coast fever was enzootic. A multitude of diseases were caused by ticks, though losses from that source were minimized by dipping at the base depots in tanks containing arsenical fluids. From four to six hundred animals can be passed through a tank within the hour, but the female tick deals in much higher mathematics; she can lay from two thousand to six thousand eggs! It will be understood, therefore, how grossly infected the veldt becomes. It is said that about seventy-five percent of all stock diseases in Africa are caused by ticks. Then, as if that in itself were not sufficient, there are those disgusting by-products of the tick, the tick-birds (*buphaginae*) and cow-herons (*bubulus lucidus*), which eat the ticks on the cattle, and then prey on the cattle that have sores.

Of all the diseases, however, most deadly is that produced by the bite of the tsetse fly. With the continual trekking back and forth of large numbers of animals this fly became spread over long tracts of transport route, so that its infectivity rose from its normal three to four per cent. to practically every fly being infected. The morality among horses, mules, and cattle became appalling. Of oxen alone sixty thousand were employed in this campaign, and most of them died, chiefly from the bite of the tsetse fly. No cure has been discovered for the disease produced by this insect, but it is known that arsenic administered daily will prolong the working life of

an animal for about six weeks. So two and a half million tabloids were issued for this purpose, and the oxen, horses, mules, and donkeys were dosed with arsenic, and kept at work until they dropped. The grain feed was the vehicle used for administering the arsenic, and when grain ran short the arsenic could not be given. As a matter of fact the greater part of the supply of tabloids remained unexpended. It is worthy of note that throughout all the vicissitudes of the campaign, the Abyssinian and Somali pony and mule survived best of all; they could go longer without water, withstand the sun better, and probably had some resistance to tsetse infection.

The British lost 100,000 animals in East Africa alone, and towards the end of the campaign it was necessary to use 120,000 natives in the transport. The veterinary service did all that lay in their power. They applied disease-preventive measures where such were known, and they selected the thousands upon thousands of cattle, sheep, and goats for the meat supply for the troops. But at the front, where the average life of a horse was



IN THE END HE WAS DUG OUT.

from three to four weeks, where the disease-stricken animal was practically incurable, where in one hospital alone during the month of November, 1916, over 1,800 horses and mules were destroyed, and the carcasses lay in mountains, the veterinary officers are said to have felt themselves superfluous. "The only qualification necessary," remarked one of them, "is to be a good revolver shot."

Entomologists did their bit by mapping out routes in an endeavor to dodge the fly areas, but human knowledge and skill seemed meagre and trifling, with no power to avert the fearful holocaust.

One would like to pay a tribute to the noble part played by animals during these years. In no sphere of operations were their sufferings so great, nowhere was the mortality so terrific, and perhaps never did one feel more deeply the debt we owed to these dumb creatures.

DOGS

THERE were some animals which the army veterinarians did not handle. Because they were smaller and less numerous than those I have mentioned, it was found more practical to have them cared for in civilian veterinary hospitals or even by individuals sometimes. In this class came the war dogs, the keenest, the most intelligent, the most anxious to help, of all the animals used by the Allies. They were the only four-foots who could be trusted to do a piece of work strictly "on their own." Each one knew his job and did it, not because he was made to, but because of the love which is the impelling motive for everything a free dog does for a man.

They served in many capacities,—as messengers, sentries, and patrolmen, and occasionally as combatants; as draught animals with the machine guns, in the transport, and in the mail service; and as pack animals to carry food and ammunition to points difficult or impossible for other animals to reach. As detectives they were valuable assistants, and as watchmen they were easily superior to men. Not the least important of their many services to the Allies they rendered as "mascots" to the troops. By their merry pranks and the keen interest they showed in everything that was going on; by their readiness to respond to every kind word and to every friendly act; by their courage, loyalty and everlasting good-nature, they helped to relieve the feverish strain of war, and to keep up the morale of the men in the trenches as it seemed nothing else on earth could do.

They were not used to the limit of their mental capacity; only to the limit of what is practical in time of war. Most of the stories we have read of their wonderful work for the Red Cross; of their searching for, and finding, wounded men after a battle and guiding stretcher-bearers to the scene, are fiction. That the Germans used dogs with more or less success in Red Cross work I am aware, but so far as the Allies are concerned I am informed on the best authority that not a single life was saved in France by a Red Cross Dog. It was not that it was impossible to train dogs to do any of the feats required for such duties, but that it would have taken too much of the time of too many good men to establish and maintain an efficient Red Cross Dog Service in time of war. General Joffre abolished the Red Cross Dog in the French Army in 1915.

But, as we shall see, the fame of the war dogs may well rest on the splendid work they actually did; it needs no support from the stories of what some of the sentimentalists would like to believe they did.

FRENCH WAR DOGS

Sentry Dogs

OF all the Allies, the French used dogs the most, and in the greatest number of ways. The French war dog service was established after the beginning of hostilities, and its success was due largely to the untiring efforts of Sergeant Paul Mégnin, who later became chief of the service. The prejudice he had to overcome is well illustrated by the following story, which was told me by M. Mégnin himself.

One afternoon about the time when dogs were being introduced in the army, Sergeant Mégnin and an assistant appeared in the front line trenches with Za and Helda, two Alsatian sheep dogs trained to sentry duty. They had come to offer the services of the quartet for night work at the front, but the Captain to whom the matter was referred, was merely amused. Mégnin politely pressed his offer, and at last the Captain said, "Well, there's a Boche outpost somewhere out there, which we haven't been able to find; if your dogs can discover it for us, then I'm for sentry dogs."

Mégnin bowed. "If the outpost is within 250 meters," he said, "we shall probably find it. If the men on duty there move or are relieved during the night, my dogs will hear them and tell me where they are."

As soon as it was dark Mégnin took up a position in the trench, with Helda lying on the edge of it. One hundred and fifty meters to his left his assistant, a ser-

geant of the 22nd Chasseurs and an expert dog-trainer, occupied a similar position with Za. They had not been watching for more than ten minutes when Helda's ears went forward, she turned her head slightly and began to growl. Her master tried gently to calm her, but her attention was firmly fixed on something he could neither see nor hear. So he very carefully marked the point at which he stood and the exact direction of the dog's nose from that point. A minute later he learned from his assistant that Za also had growled, and that of course the sergeant had marked the direction of her nose. The Captain was awakened and Mégnin indicated the lines along which the dogs had pointed.

"Where those lines meet," said he, "you will probably find what you are looking for."

"We'll see," said the Captain, and mounting an observation post, he ordered a star-shell sent up above the point which Mégnin referred to. There, sure enough, was the German outpost he wanted, and a French battery did its duty.

Helda eventually became the most famous sentry dog in the French army. But she was more than a sentry dog. She was a veritable canine Sherlock Holmes, and more than one criminal has marveled to think how much that dog knew about him. Helda had not human intelligence; if she had, most of the deeds which won for her the name she bore would never have been performed. But she had dog intelligence in a high degree, and this, supplemented with powers of scent and hearing such as no man's can approach, made her an ace among war dogs. As I am not writing her biography I must content myself with one more story concerning her.

In a neglected corner of a lonely graveyard in Gérardmer, there is a mound without the customary wooden

cross to mark it. Poilus who sometimes come to bow their heads reverently above their dead comrades, pass it by with contempt. It hides all that remains of the bullet-riddled body of a private who, during the war, had been tried and condemned by Court Martial and shot as a traitor to France.

In the early part of 1915 this battalion was the first unit in the army of the Vosges and Alsace to possess a war dog kennel. It had been established on a farm, a few hundred yards from the village of Sulzeren on the Alsatian border, and the farm buildings had been converted into quarters for the kennel men and dogs. At the time of which I speak—the summer of 1915, Sulzeren had just been captured by the “blue devils,” and the French and German lines were very close together, some of the opposing sentries being but a few yards apart.

The kennels were in charge of an amateur trainer, named Gilroy, who had planned and effected the organization. With about a hundred dogs to keep in training, Gilroy had more work than he could handle alone, and he asked for an assistant trainer who could also make himself useful as a general helper. The man sent to him was private Vachet, a smart soldier of the 12th battalion Alpine Chasseurs, who qualified as an expert jack-of-all-trades, having at different times been a cook, a watchmaker, a laundryman, a shoemaker, an acrobat, and a circus rider. He was sour-tempered, but very intelligent, with a keen memory, and he soon proved a clever assistant dog trainer.

As Gilroy had to be away with his dogs a great deal, Vachet was left to himself, and being fond of walking, wandered about the sector until he knew not only every mule path over the mountains, and all the isolated farms and the short cuts between them, but every reserve camp

and battery position, and even the names of the officers in all the units.

One murky night, private Herbelin, a kennel man, was awakened by the growling of Helda, who slept at his feet. He became aware that other dogs were growling. He arose quietly and heard a man say in a very low tone, "Pschutt! Pschutt!" It was Vachet's voice, and he was trying to silence the dogs. Some of them stopped, but Helda continued to growl, and presently Herbelin saw Vachet pass out of the door into the night. Some hours later, about 4 A. M., the chasseur returned, and again Helda led the growling. Now the interesting thing here is that the men, including Vachet, often went out at night, and the dogs, their constant companions for months, had never paid any attention to their going or coming. Apparently there was something peculiar about the way this man went out which Helda didn't like. Perhaps it was some unusual stealthiness.

The matter was reported to Sergeant Mégnin, who happened to be visiting this part of the front. He disliked being suspicious, but he considered it his duty to pay attention to the warning of so intelligent a dog as Helda. So he instructed Herbelin to keep a watch, and to call him if anything unusual happened.

Two nights passed without event, though kennel men went out and came back. But on the third night the sound of distant thunder came from Helda's throat, and Herbelin, putting out his hand, felt the dog's body stiffen and the hair rise upon her shoulders. Then he saw Vachet steal silently away. He notified Mégnin, and again at about four in the morning, the chasseur returned.

Mégnin was worried. He knew of Vachet's extraordinary knowledge of the surrounding country, and re-

alized that if he were selling this knowledge to the enemy the situation was a serious one. Next night, he and Herbelin both kept watch, and when Vachet went out they followed him, or tried to. But it was no use; they quickly lost him in the darkness.

A few nights later when the suspected man disappeared out of the door, Mégnin and Herbelin followed him again, but this time they were accompanied by the two dogs, Helda and El Tango, both on leash. The keen-scented animals were put on Vachet's trail, and led their trainers for miles over the rough ground and up into the hills, until they came to a mountain stream. Here the dogs were baffled for the man they were tracking had evidently entered the water which of course had carried away the scent. The little party crossed the stream, and as Helda and El Tango could find no trail there, it was evident that Vachet had taken this opportunity to elude pursuit in case he were followed with dogs. How far he had stuck to the water, or whether he had gone up stream or down, there was no way of telling without experiment. But as Mégnin was looking about and considering his next move, he saw a light flashing from a point on a hillside at some distance beyond them. Someone was signaling to the enemy with a flashlight.

The party returned to the kennels and Mégnin got in touch with the Secret Service.

Next day the kennels were shelled by the enemy's heavy guns, and men and dogs were obliged to seek shelter in hastily made "cagnas" on the edge of Lake Darey. Then by the checking up of dates it was found that some unusual enemy activity had occurred on every day that immediately followed one of Vachet's night wanderings. On one of these dates the military camp at Bichstein, which had just received a large number of relief troops,

had been bombarded; on another there had been a heavy shelling of the Gazon Martin's batteries.

An inspector from the Secret Service was soon at work on the case and with the aid of the trainers and their dogs, he captured Vachet red-handed. At first the man denied his guilt, and attempted to explain his actions; but a few days later in his cell he made a partial confession of his treachery. Next morning however, when he was brought out for an examination, he made another denial. But there was present a most convincing witness against him. It was Helda, the dog he had fed and cared for, and with which, until lately, he had been on the friendliest terms. Now she stood before him, a growling menace, her leash drawn taut as a bowstring, mane erect, and bright eyes flashing deadly hatred. But the leash was strong, and Vachet, defiant, persisted in his denial.

An officer whispered to Mégnin, and Mégnin made a sign to the dog. Instantly and without a sound Helda leaped at her man, and as her wolf teeth met in the arm he raised to stop her, he yelled:—

"Take her off! Take her off, and I'll tell you everything."

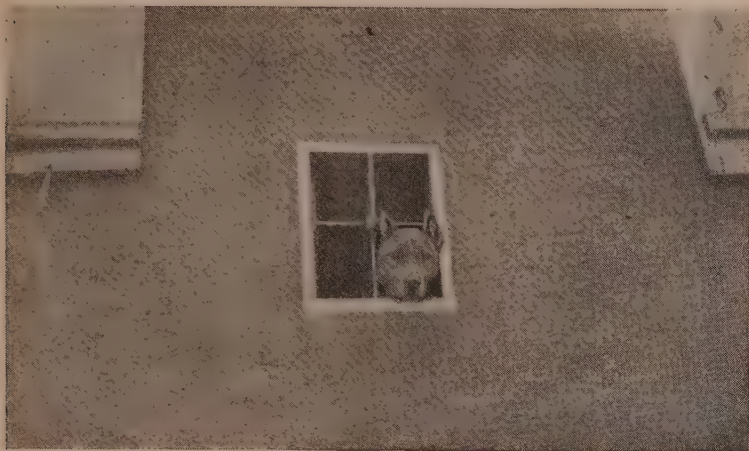
"Let go, Helda!"

The disappointed, but obedient, dog let go her hold, and backed slowly away as if hoping that the last order would be reversed.

Then Vachet told his story; how for two hundred and fifty francs—that was all he had actually received—he had become a traitor. He told how, by means of a pocket flash lamp with a range of several miles, he had repeatedly signaled to the enemy at night; and how during the daytime he deposited in old tree trunks messages, which were later collected by a German spy who passed through the French lines for that purpose, in the uniform

of an Alpine Chasseur. He also admitted that it was on information furnished by him that the recent bombardment of the battery location, of the kennels, and the reserve camps, had been ordered. He said that he had brought about the shelling of the kennels because he felt that he was suspected, and hoped that those who might be watching him would be destroyed.

The Court Martial which sentenced Vachet to be shot, also paid special tribute to the vigilance of war dogs. And the kennel manager and his assistants were officially commended by the Division Commander, and by the head of the Secret Service of the Seventh Army.



SENTRY DOG AT HIS CANTONMENT.

SENTRY DOGS

LIEUTENANT-COLONEL E. H. Richardson, late Commandant of the British War Dog School, tells us that the qualities required in a sentry dog are "acute hearing and scent, sagacity, fidelity, and a strong sense of duty." Lieutenant Paul Mégnin, Assistant Chief of the French War Dog Service, lays special emphasis on "hearing," which he considers of first importance. Under circumstances where a dog can neither see nor smell an approaching enemy, he says, a sensitive ear will often enable him to give necessary warning. He considers hounds, for all their marvelous powers of scent, "practically worthless" as sentries, and among more than six hundred dogs that he sent for duty in Alsace and the Vosges, only one auxiliary sentry, a griffon-pointer named Chocolate, was of the hound type. Eventually he discov-

ered that even this specimen had a mixture of shepherd blood in him.

Medium-sized dogs were preferred as a rule—dogs big enough to endure a hard march when necessary, but not so big that they were in the way. Airedales were great favorites with the British, as were large Irish terriers, collies, retrievers, and crosses of all these breeds. Some of the best French sentries were Alsatian shepherds. It will be noted that practically all these dogs have serviceable weatherproof coats, a matter of great importance to animals doing night duty in exposed positions at all times of the year.

In order to minimize the activities of spies and robbers, always coincident with war operations, the French organized, under the Ministry of Armaments and War Manufactures, a service for protecting all organizations doing work for national defense. The work consisted largely of maintaining patrols, sentries, or cordons of sentries, armed guards, and auxiliary inspectors of the In-



FRENCH SOLDIERS WITH SENTRY DOGS IN THE TRENCHES.

telligence Service. Notwithstanding its large and costly personnel, this service was far from being entirely effective, and when in 1917 the Ministry of War reorganized the Service of War Dogs, the Minister of Armaments asked this Service to furnish dogs to replace sentries, and to accompany patrols and watchmen on their rounds. This request led to the training of several grades of canine assistants, requiring shorter or longer periods of instruction, according to the simplicity or intricacy of the work required of them. The so-called "enclosure" dog was simply an efficient watch-dog to be set free at night inside an enclosed area, such as a factory yard. His duty was to give warning of the approach of strangers, and to "entertain" any intruder until the arrival of a human watchman. A suitable dog could be trained for this work in from ten days to two weeks.

A higher grade of service, requiring from five to seven weeks of training, was rendered by what might be translated as the "rounds" dog, which accompanied his master, explored the territory immediately around him, defended him if necessary, and prevented the escape of any suspected person.

Of still higher grade was the so-called "detective" dog, which might or might not be capable of performing these duties, but which would follow a trail, search suspected premises, and "identify" a suspect whose trail he had been following. At least three months were required to perfect a student in this work, and no time was devoted to any but the most intelligent dogs. When "working on a case" a "detective" was usually accompanied by his trainer, who led him in a leash attached to a harness, which allowed him to pull as hard as he liked without choking himself. The following incident gives an idea of the sort of work these canine experts were called upon to perform:

In the early part of 1916, a gang of deserters from the French army were terrorizing a whole district of the Department of the Upper Saône. They had given their attention to smuggling and highway robbery, and had already killed a policeman and two customs officers. The Secret Service of the Seventh Army decided to rid the country of this gang, and organized at Remiremont an expedition for this purpose. It consisted of an infantry company, a section of engineers with explosives and poison gas, twenty-five military policemen, three police commissaries, fifteen secret service inspectors, and the head of the Intelligence Service. With them were two dogs, Faro, a Beauceron shepherd, who before the war had won many prizes in police dog trials, and Max, a Doberman pinscher, who in 1914 had captured fifteen poachers in Kersaint Forest in the Oise.

The bandits were known to frequent a dense forest 120 kilometers away, and an abandoned mill in the heart of it was believed to be a favorite hiding place. One night, in a fleet of automobiles and motor lorries, the expedition started for this forest, and arrived at the outskirts a little before dawn. From here the party proceeded on foot to a group of lonely buildings, which included the mill. The infantry surrounded the place, and the engineers were ordered to blow it up in case of resistance. Then a door was smashed in, and Faro, the police dog, was told to search the buildings. This he did swiftly and thoroughly, exploring the different rooms, upstairs and down, turning over mattresses and tearing open closet doors. But the place was deserted, the bandits had flown. The dog was recalled, and a moment later the engineers destroyed the place to prevent its further use by outlaws.

But meanwhile, Max, the keen-nosed "Doberman"

had been circling through the woods, and now, in dog language, informed his trainer that he had picked up a trail. His eyes signaled "follow me," and his half-inch tail twinkled absurd assurances that he was not mistaken. At a word from his trainer away he went, followed by a police commissary and the military police. He led them for more than a mile to what looked like a deserted farm house, but the dog insisted that it was occupied.

"Open, in the name of the law!" shouted the police commissary, and a woman came to the door. The house, she said, was occupied only by herself and her husband, and the latter was sick in bed. Investigation proved that he was in bed, but Max growled and protested that this was the man he had been following. The police were in no humor for nonsense, and the "invalid" was soon sitting at a table telling all he knew about the gang of which he was a member. The information which he furnished enabled the police to apprehend all but one of these outlaws, and after a speedy trial in the Criminal Courts of the Upper Saône, they were found guilty and sent to prison.

The War Dog Service organized two kennels near Paris, and a third in Normandy, for the training of dogs, and a fourth was being contemplated at the time the Armistice was signed. Messrs. Dretzen and Michollin, respectively Honorary President and Honorary Secretary of the Amateurs' Union of Defense and Police Dogs, and Mr. Bradbury, an English member of the Canine Society of Normandy, were among the civilians who principally coöperated with the professional trainers of the Service, and by their zeal and devotion helped to perfect its work.

As it is well-known that the best trained dogs are useless unless they are properly handled, care was taken that the animals were not turned over to men who knew noth-

ing of dog management. As soon as the four-footed defenders had completed their education, the watchmen and others who were to have direct control of them, were sent to the War Dog School at Satory for an eight-day course in dog handling, during which they became thoroughly acquainted with the particular animals with which they were to work.

The immediate result of the use of such dogs was a great saving in man-power. It was universally admitted that one good watch dog was worth two good sentries, but the advantage in favor of the dog was often much greater than that. For example, at the aviation camp at Cazaux, it was found that sixteen men and sixteen dogs could do the work which formerly had required fifty-two sentries.

In a warehouse of the General Automobile Reserve Corps, where, in spite of a cordon of sentries, frequent robberies were committed, six dogs replaced twenty-six men, and captured three tire and gasoline thieves in the very first week.

The supply depot at Aubrays, near Orleans, was regularly visited by food robbers and barrel drainers, who ceased their activities only when three dogs were put on duty to relieve fifteen keepers who had not succeeded in preventing depredations.

A powerful, resolute dog, keen of eye and nose and ear, intelligent, fearless, and unbribable, backed by a well-armed, equally resolute man whom he loves and who for his part understands the dog's every sound and movement, is a combination that few evil-doers care to face even in the daytime, let alone at night. It represents a danger that is only partly understood. A thief may understand a human watchman, and decide to take a

chance with one whose mental and physical attributes are similar to his own, and perhaps no better. But the dog usually is a quantity at least half unknown to him, and whatever knowledge he may have does not give any comfort. It does not inspire one with great confidence to know that he will have to face not only his equivalent in manpower but, in addition, an animal that, by reason of superior scent and hearing, will always have "the drop on him," that can run him down if he is in sight, that can track him if he isn't, and that will listen to no argument save death itself. The odds are too great for the average thief, and he'll seek his opportunities in a less hazardous game.

The records of this service are very brief, but unmistakable in the evidence they give of the value of the dogs.

"Delivrée, No. 1652-B. On the night of August 24-25, 1918, this dog detected, while still far away, enemies attempting to overwhelm Le Buisson, a small outlying post. She gave the alarm twice. The post commander ordered fire opened on the enemy party, which was dispersed. One of our reconnoitering patrols found in front of our barbed wire many devices such as shears, grenades, explosives, etc., and traces of blood."

"Miss, No. B3, Remèreville sector, during night of February 7-8, 1917, gave several warnings. Thanks to the watchfulness of this dog, an enemy *coup de main* was foiled at Montcel. Prisoners were captured, among them an officer."

At least one French regiment, the 42nd Colonial Infantry, organized a regimental kennel in order that sentry dogs might be available whenever needed. The kennel was in charge of Sergeant Trouve, formerly a gamekeeper on the estates of Henri de Rothschild. The

following is one of scores of similar entries to be found on the books of that kennel:

"Turco II, No. 219-B. Joined unit July 7, 1916. Several times warned of approaching enemy patrols which were dispersed. Served in East February 2, 1917. During night of February 18-19, at Monastir Sector, Turco warned of an approaching Bulgarian patrol, on which advance post opened immediate fire. Enemy patrol could not throw hand grenades within 30 and 35 meters of our post while retiring."

Another entry speaks of Kiki, also a sentry dog on the same front:

"Kiki, wounded in the foot by a Bulgarian bullet. After being bandaged, went on sentry duty again, and three and a half hours later gave warning of another enemy patrol."

On April 29th, 1916, the officer commanding the 153rd Infantry Brigade, holding Rabodeau-les-Ravins sector in the Vosges, wrote to director of the 7th army kennels:—

"The auxiliary sentry dogs on duty in this sector are particularly alert and watchful. Thus on April 26th our sentries were warned by Polo of an attempted attack on one of our block houses."

The following more detailed report of the occurrence came from the sentry with whom Polo was on duty:—

"On April 26th, at four o'clock in the morning, sentry dog Polo warned me of the approach of a strong patrol which was cutting barbed wire in front of the block house, about 200 meters away. He warned me well, first by moving his head and then by growling. Then I took my dog into the trench, and our gunfire and hand grenades started. The enemy patrol was driven back and they left on the spot six pairs of shears and other belongings, and a cap full of blood. Polo did his duty well and the

whole post is satisfied with him. I have received congratulations on account of him, and so I am very glad and proud too. Mr. Director, I remain,

Yours respectfully,
BENSON HUBERT,
3rd Company, 2nd Batallion,
115th Territorial Infantry Reg't."

Cabot, a powerful French sentry dog with a dash of bulldog blood in his veins, had an "unexpected pleasure" one night when he detected a German messenger dog working his way along the front. For the first time on record he deserted his post, and followed by his master, cut across no-man's land and intercepted the enemy. There was a fight of course, but it was a very short one for Cabot was playing his own game and he quickly strangled his adversary. A metal tube on the dead dog's collar, full of German dispatches, was soon in the hands of the French command, and Cabot, after licking some blood from his coat, gaily followed his master back to the trench.

The vigilance of such dogs also did much to discourage the enemy practice of kidnapping sentries, with a view to extorting information. On certain sectors and at certain times this was indulged in with much discomfort to the French. For example, one regiment in the Vosges, in the month of July, 1915, had seven sentries captured in three nights. But after the 14th Chasseurs, with six sentry dogs came in to hold this position, the enemy discontinued the practice.

Toward the end of the war, the French also organized a "Pack and Driving Dogs" service, in which were utilized many big, powerful animals that were not qualified for other army work.

This service comprised a certain number of "sections," each of which consisted of about 150 dogs selected for the size, build, and strength necessary to perform the work, with the requisite number of light cars, harnesses and pack saddles. The dogs were trained through progressive marches until they had great endurance. The personnel was made up of about thirty men, including officers, drivers, orderlies for the men and dogs, harness makers to repair collars and harnesses, and a veterinary orderly to care for sick and wounded dogs. Only two of these "sections" were in active service when the Armistice put an end to hostilities, but they had proved so valuable that other sections were being organized, and had the war continued there is good reason to believe that, in the French army at least, they would have been in general use. The harness-dogs did much useful work in distributing equipment in large camps, in delivering mail, and in hauling supplies at the front—wire fencing, barbed wire, stakes, sand bags, cement, ammunition and food.

One of the two sections was attached to the 11th unmounted Cuirassiers, and for the month of July, 1918, during which this regiment did heavy fighting at the front, formed a unique and very successful supply service. Under shell and machine gun fire, and through gas attacks, the dogs, with their 28 drivers, carried food and ammunition to the fighting men, quick-moving, intelligent and steady amid the noise and the strangeness of battle. The Colonel commanding the Cuirassiers gave generous praise to dogs and drivers, and admitted that without them he would probably have lost fifty supply men. A number of the drivers were wounded, and several of them won the Croix de Guerre by their gallantry.

Lieutenant Hautecloque, who supervised the opera-

tions of this section, had this to say about the work of the dogs:—

“The regiment was attacking with two battalions on line; the 3rd was supplied by means of mules. The 2nd battalion was served by pack dogs, three squads, each composed of four men in charge of a corporal, and twenty-four dogs. During the forward movement, until the conquest of Plemont Wood, all the ammunition was carried to the battalion by dogs. The average load consisted of fifteen grenades, or fifteen machine gun belts per dog. Each dog made about 6 trips a day, which means on certain days the supply of over 400 loads of ammunition by dogs. Unfortunately, the dogs have been somewhat tired out. Some were put out of service, either through overwork or from marching through yperite-smeared ground, which resulted in sore feet, making the dogs lame and quite unable to run. Only one died. The dogs have been practically always without protection from the weather. Nevertheless, outside of an easily understandable loss of weight, their chief trouble has been with sore feet from yperite and from work on pebbles and stones, and among barbed wire. Nearly all of them can be returned after a few days nursing at the army kennel to which they have been evacuated.”

Few war dogs received special honors, but Pyram, a ragged little mongrel who served with the French army in Alsace, was an exception. Pyram would never have been admitted to a bench show, but he had eyes that shone like bayonet tips, and what he didn't know about sentry duty wasn't known by any dog. The sector he happened to be working in was a particularly dangerous one and gave full scope to his genius. He took the liveliest interest in his work, and again and again gave timely warning of the approach of enemy patrols, and thus pre-

vented night attacks and probably the loss of many French lives.

In the spring of 1916, President Poincaré went to Wesserling and reviewed the troops which were resting there. As the 15th battalion swung past, with the band leading and the war dogs close behind, the President showed great interest in the canine warriors and later when the column was halted he went to see them. As he walked among them, with a kindly word or pat for each, he asked about their records. At last his eye fell upon a black, tousle-coated, but very wiry and alert little dog, and as a sergeant led him forward, eyes front, and a serious look on his hairy face, M. Poincaré smiled and said, "Well, mon ami, what have you done in the war?" The sergeant saluted and proudly told of Pyram's deeds, whereupon the President asked an officer for a Scout Badge, which he fastened to the war dog's collar. Then he patted the tousled head and Pyram, smiling and wagging his tail, trotted back to his position in the line.

BRITISH WAR DOGS

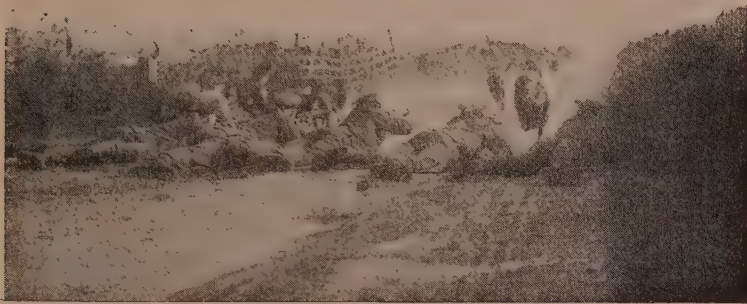
WHEN the war began there was just one military dog in the British Army—an Airedale which had been trained for sentry duty by Mr. E. H. Richardson, who later, as Lieutenant-Colonel Richardson, became Commandant of the British War Dog School. This Airedale went to France with the 2nd Battalion, Norfolk Regiment, and eventually was killed in action on the Aisne.

Mr. Richardson, the foremost authority on dog training in Great Britain, had always been a believer in military dogs. He knew that several of the powers including Holland, Sweden, Italy, Russia, and Bulgaria, had war dog schools, at least in an experimental stage, and that Germany had a thoroughly organized service of military and police dogs. Long before the war, and again at the opening of hostilities, he urged the use of dogs by the British Army, but failed at first, as Mégnin did in France, to convince the War Department. So when hostilities broke out, England and France had practically no war dogs, while Germany, at an order signed by Ludendorff, was able at once to mobilize about six thousand of these canine warriors. Eventually both England and France were to be convinced. Conditions on many fronts created a real demand for dog power, and the trainers were able to show, not only that the demand was based on common sense, but that it could be adequately supplied.

Officers at the front began to write to Richardson, re-

questing trained dogs for sentry, patrol, and messenger duty. He supplied these from his private kennels, and some of them did such fine work at Vimy Ridge and elsewhere, that they attracted the attention of the authorities, and Richardson was ordered to the War Office to discuss the question of supplying dogs—especially messenger dogs—to the army. The upshot of it was that a War Dog School was established at Shoeburyness, and that Mr. Richardson was made a Lieutenant-Colonel and put in charge of it. He was fortunate in having for his assistant Mrs. Richardson, whose love for dogs, and whose gift for training them, had much to do with the ultimate success of the British War Dog Service.

The demand for dogs grew rapidly. At first the supply could be filled from the Home for Lost Dogs at Battersea. Then the Dogs' Homes in Birmingham, Liverpool, Bristol, and Manchester were called on for whatever suitable dogs they might collect, and later the Home Office ordered the police all over England, Scotland and Wales, to gather up the stray dogs of the usable breeds and send them to the school. Finally, all these sources together failed to supply the needs of the War Dog School, and the War Office appealed to the public for gifts. And the response was what might have been expected from a people who do nothing by halves. Their country needed dogs and she must have them, regardless alike of their money value and the love their masters bore them. In they came, and with them letters, some on crested paper, some soiled and wellnigh illegible, but all showing that spirit of sacrifice which the English showed throughout the war. One lady wrote:—"I have given my husband and my sons, and now that he too is required, I give my dog." Said a little girl: "We have let Daddy go to fight the Kaiser, and now we are sending



TRAINING BRITISH MESSENGER DOGS TO ADVANCE IN THE FACE OF GUN FIRE.

Jack to do his bit." And one of the "Old Contemptibles," who had lost a leg at Mons, and who was otherwise disabled, wrote in a firm hand, "I have not much that I can give my country, but I gladly send my dog to help."

And of these dogs Colonel Richardson says: "Many of them were fine show specimens, while others, of humble ancestry, came with wise faces and willing hearts. They were one and all welcome and were made to feel so."

The British dogs at the front were used chiefly as messengers, auxiliary sentries and patrols. Many breeds and combinations of breeds passed through the War Dog School, giving the Commandant an interesting opportunity to observe their relative adaptability to the work required. Not all dogs of the necessary size were suitable for work requiring such a combination of very fine qualities. A messenger dog, for example, must have the courage to travel alone for miles under heavy bombardment, never allowing the inferno caused by bursting shells to take his mind from the route he is trying to follow. He must be resourceful enough to overcome whatever barriers may be encountered on his journey; swimming the

rivers, leaping the fences, working his way through barbed wire entanglements. He must be intelligent enough to pass through villages and towns crowded with people, and cattle, and moving vehicles, without becoming confused. He must have speed and endurance to enable him to make his trips quickly and without fail. And last, and very important, he must be able to resist the temptations which so often beset his path in the shape of food and the kind words and caresses of the well-meaning but thoughtless people who seek to turn him from his purpose.

"I have seen," writes Colonel Richardson in his book 'British War Dogs,' "many amusing instances during the moral education of the dispatch carrier. On one occasion a collie found a workman's dinner neatly done up in a cotton handkerchief under a hedge. He was nearing home and going along with a steady swing. The delightful scent of the repast was too much for his half-trained sense of honor, and he stopped to examine it. Feeling uneasy in his mind, however, he did not care to delay to eat it there, and seizing the bundle by the knot, bore it away. He arrived at the training post with a curious expression which desired to convey the information, that although he realized he had not acted in an absolutely straight-forward manner, at all events he had lost no time on the road."

Collies averaged extremely well, and, contrary to expectations, show collies were found to be as good as those of the working type. Greyhounds were seldom of any use, and never for more than short distances, but, when crossed with other breeds, the resulting "lurchers" were often very good indeed. Airedales made a splendid record. These three, collies, lurchers, and Airedales, outnumbered all other breeds in the messenger service of

the British Army. There were a good many sheep dogs, retrievers, Irish terriers, and spaniels; a few deerhounds, setters, Welsh terriers, and bull terriers, and a very few greyhounds, Eskimos, Dalmatians, Bedlington, pointers, bulldogs and whippets. As might be guessed, the great majority of war dogs were not pure bred.

The fact that certain breeds were used in considerable numbers does not necessarily mean that these breeds were better than some of the others that were used in smaller numbers. Deerhounds were probably just as good as Airedales, and Welsh terriers as good as Irish, but there were not as many of them available.

Hounds as a class were not of much use for any war duty which required the animals to work independently of human allies. Their absorption in their natural work—the temptation to follow the scent of some wild creature that had crossed their path,—was usually so great, that even if it were possible for training to overcome it, the time required was better spent on breeds which had—shall we say—a broader outlook on life.

Colonel Richardson's comments on some of the dogs which he considered practically useless for military purposes are both interesting and amusing. He says: "Hounds are untrainable. I have succeeded in training one or two to carry messages short distances, but when the distance is above a mile the hounds seem to lose interest. Poodles are too fond of play, and I found that any poodle cross seemed to diminish a dog's capacity. Another curious fact to be noted is that I have rarely found a dog with a gaily carried tail, which curled over its back or sideways, of any value. This method of carrying the tail seems to indicate a certain levity of character, quite at variance with the serious duties required."

Fox terriers also were found to be too frivolous for such serious work.

Every dog received at the War Dog School was given a chance to make good. His instructors were understanding and sympathetic, but long experience had taught them to sort out pretty quickly the dogs that simply had not the capacity to learn. These were returned to their owners if they had any. Dogs that were out-and-out slackers, or "conscientious objectors," were given a short shrift and sent to the lethal chamber at Battersea. England expects every dog to do his duty!

The War Dog School at Shoeburyness was later removed to Lyndhurst in the New Forest, and there I visited Colonel Richardson and had the privilege of seeing some hundreds of his canine pupils in camp. The school was established on high ground about a mile from the quaint little village, and as I approached I saw that it was guarded by a cordon of Great Danes, each of which was on a stout chain which ran freely along a horizontal bar of iron perhaps a hundred feet in length. Each dog could approach his nearest neighbor on the right and left, near enough to prevent the most agile intruder from passing between, but still not quite near enough to enable the animals to fight when time hung heavily on their hands. Inside the cordon was the school proper, which covered several acres, part woodland, part open country, with groups of trees here and there. Most of the messenger and sentry dogs were in a large colony in the woodland. Each was chained to a separate wooden kennel, which bore the name of the occupant. As we passed along on our tour of inspection, a smiling dog barked joyously and waved his tail at us from the top of every kennel. There were "Tabs" and "Archer," "Glen" and "Royal," all sheep dogs; "Rupert" a black Spaniel;

"Banjo" a Welsh terrier; "Brick" and "Robin Hood" both lurchers; "Benefit" and "Jupiter," Labrador retrievers; and many more. Very few of them were pure bred; not one of them would have stayed ten seconds in the judging ring at a dog show, but for real worth most of them would have held their own in any company. They had honest faces and their eyes were kind and steady. They were intelligent too, or they would not have been there; every one of them had passed successfully through a period of probation during which all "fool" dogs were weeded out and returned to their thankful, but indignant, owners.

In the open fields we found the watch dogs, retrievers, setters, great Danes, deer hounds, and at least one gigantic Irish wolf hound. Their greeting was entirely different. I was a stranger, and a very suspicious character, to say the least. They kept their eyes on me every moment, and barked with a savage snarling bark which made me glad to remember that they were securely chained. However, I wished to see for myself if this threat were partly bluff, or if they really meant it, so I got Colonel Richardson's reluctant permission to attempt to make friends with one of these four-footed watchmen. I strode boldly forward, smiling and speaking in tones which were meant to be "kind but firm." The dog, a black retriever, did nothing but watch me until I was just within the radius of his chain. Then I stepped back suddenly as the brute hurled itself, a living thunderbolt, and a set of white and very willing teeth bit a chunk out of the air where my throat had been but a moment before. I simply cannot tell you how glad I was that the chain was not made of anything that stretched.

Well apart from all the others, and under a group of large oak trees, was a little colony of about half a

dozen extremely savage dogs, each one trained to guard an especially important point, and to see to it personally that an intruder was not permitted to commit any overt act. The Commandant thoughtfully suggested that we had better not attempt to go near them, because if even one chain should break, he doubted his ability to save me single-handed. There are times when one takes—even wishes to take—a suggestion as a command, and after my recent experience with a dog rated only as “medium savage” I had not even the faintest desire to disobey.

Later I was permitted to test the messenger dogs by sending messages for a mile or more in little leather and canvas wallets attached to their collars, and when I finally left the kennels my letter thanking Colonel and Mrs. Richardson for their hospitality was carried to them by the small but speedy messenger dog, “Banjo.”

One can get some idea of the value of good watch dogs as guardians of army property from the following letter sent to the Commandant of the War Dog School by a certain English Major in charge of supplies at a well-known permanent camp.

“There are at present two St. Bernard dogs employed at the Forage Depot here. Could these be exchanged for two smaller dogs? There are at the Supply Depot a collie and a bob-tailed sheep dog. They have been found most useful and cannot be spared, and if *two dogs* like these could be sent, a night watch of *ten men* could be dispensed with.”

Scarcely less convincing is another letter from a Major on duty at one of the great ammunition dumps.

“I have pleasure in informing you that the three guard dogs which have been used at H——, M——, and

T——, have in each instance carried out their duties in a very satisfactory manner.

“By their use it was possible to mount only a single guard at night, instead of the double guard, as is usual in the case of guards for ammunition dumps.”

It was generally conceded that one good guard dog was equal to two good watchmen, but that even this concession does not do full justice to the four-foots, at least in very many cases, is shown by scores of reports like the following, written by an officer of the Royal Field Artillery stationed at West Beckham, Norfolk:

“The dog was posted outside the entrance of the Main Ammunition Dump of the 223rd Mixed Brigade. The possession of this dog enabled the military authorities to reduce the guard of fifteen men down to a patrol of seven men. The dog had a wonderful intelligence,—he knew the footsteps of the patrol, and when hearing strange footsteps he created a tremendous disturbance, thereby warning the occupants of the hut a few yards away from the dog’s post. * * * * *

“I had one man told off to care for the dog—the animal got used to him—and no other man dared go near him.

“In my opinion watch dogs are a great asset in the service, and I would like to see them fully utilized in the peace-time army.”

MESSENGER DOGS

THERE were two principal objects in using messenger dogs. The first was to save the lives of "runners" by relieving them of the very hazardous work of carrying dispatches under fire. The second object was to insure the quicker delivery of the dispatches, since under war conditions dogs were found to run a given distance up to four or five miles, in from one-half to one-third the time that a man required to cover it. At night, especially if it were very dark and stormy, the difference in favor of the dog was apt to be much greater than this. Pigeons were used hardly at all after dark, so when the telephonic and telegraphic communication was interrupted, as was frequently the case in the area of actual combat, a well-trained messenger dog could often render invaluable service. Colonel Richardson told me of a Brigade signal officer who gave orders that in so far as possible all *important* dispatches were to be sent by dog. His confidence proved to be justified, because on many occasions the dog-borne messages were the first to arrive, with urgent orders or valuable information.

Considering the risks which they had to run, the casualties among these dogs were extraordinarily low. They were not only less liable to be shot, but they were less susceptible to gas than human beings. The gas had however a certain amount of effect, and a dog might be incapacitated or die after exposure to it. We hear of dogs themselves detecting gas waves and giving the alarm by showing uneasiness, and, as it was not practicable for

them to wear masks, every effort was made to protect them when the warning came.

A messenger dog recruit at the British War Dog School had much to learn. He had to be trained to return to his keeper, and to him only, from any point to which he might have been led. This he was taught to do from increasing distances, up to three or four miles by day and night and after gradually increased intervals of absence; these intervals, however, did not exceed twelve hours, as it was found that after that, the success of the return was uncertain. The country over which the dog had to travel was as varied as possible, and its natural difficulties were increased by the construction of artificial obstacles, barbed wire entanglements, fences and ditches. He had even to learn how to encounter and pass through smoke screens, made from bundles of straw, and



TRAINING BRITISH WAR DOGS TO CLEAR BARBED WIRE.

harmless smoke bombs were exploded in his path. To accustom them to become indifferent to gun fire, the dogs had daily practice under rifle firing with one or two, and then more, rifles. They were then led to the batteries and stood under the eighteen pounders, and the "heavies"—a trying test, during which the candidates were diverted and entertained by being treated to coveted tit-bits.

The dogs were on duty for twelve hours and were fed once in twenty-four, viz., the close of their working day. The ration was one and one-quarter pounds of food composed of three-quarters of a pound of broken dog biscuit or bread and one-half pound of horse flesh. To prepare the food, the meat was cut into small pieces and boiled. Then the meat and water in which it had been cooked, were poured over the biscuits, which were allowed to soak for half an hour. An extra ration of maize meal was served once a week. When, as often happened, especially near the front, it was impossible to provide the authorized rations, the keepers secured scraps from the battalion cook, or from any other available source.

The question of the keeper was the most important consideration in the whole messenger service; it was more important than the dogs themselves. The cleverest dog would amount to little if unintelligently handled, and men were carefully tested before being selected for the work. "The training of messenger dogs," says Colonel Richardson, "is so different from any and every other kind of dog work, that practically everything a man has learned about dogs must be forgotten before he can qualify to be trained himself or to train others. Therefore it was not always the men that had had the most experience with dogs who were the best suited to the work."

The whole training of a messenger dog was based on appeal, and complete confidence had to exist between the

trainer and his dog. There could be no rough words, and no rough handling. The dog had to be trained to take the keenest delight and interest in its work, and to act on its own initiative, knowing what to do and how to do it under strange and unfamiliar circumstances and perhaps miles away from its keeper.

Liaison dogs were not generally adopted in the British army, for a considerable time was necessary to train the dogs to go and to return, two keepers being required for each set of dogs, and at that period of the war when the training of dogs had at length been officially recognized, the question of man power was already becoming serious.

The procedure for the use of messenger dogs at the front was interesting, but fundamentally simple. The keeper brought up his three dogs to battalion headquarters. Here he remained while the dogs were taken forward by a soldier. During all the time they were absent from their keeper, they were given water but no food, and it was strictly against orders to pet or make much of them. When the time came for a message to be sent the paper was placed in a tin cylinder fixed to the collar, and the dog was freed. Then away he went, through darkness or light, through shot and shell, straight to his master. Never was more than one dog slipped at the same time.

A messenger dog in action was one of the sights that most impressed an Australian officer, who tells how "he saw it coming from the direction of the front line trenches,—a little Welsh terrier. The ground it was going over was in a terrible condition and was absolutely water-logged. The little creature was running along, hopping, jumping, plunging, and with the most obvious concentration of purpose. He could not imagine what it



British Official, London

A MESSENGER DOG IN THE FRONT AREA JUMPING ACROSS SHELL HOLES WITH A MESSAGE FOR HEADQUARTERS BEHIND THE LINE. NEAR NIEPPE WOOD.

was doing until it came near, and he saw the message-carrier on its neck. As the dog sped past him, he noticed the earnest expression on its face."

Often enough the keepers who ran the dogs knew nothing of the contents of the messages they bore. Officers were eagerly waiting for those messages and unless a smile or scowl or a look of astonishment suggested the nature of the dispatch, usually the keeper was quite in the dark. Sometimes, an officer who was particularly human would find time to delight a man by telling him that one of his dogs had rendered important service, and by congratulating him on the management of his canine charges. We can imagine the pride of Keeper Buckingham, who was handling dogs for the 108th Brigade, when the Brigadier-General sent for him and personally congratulated him. A battalion of the Inniskilling Fusiliers had been cut off by the enemy, and were in danger of being wiped out. Their only hope lay in getting reinforcements, and these had arrived in time in response to a message sent by one of Buckingham's dogs which happened to be on duty with the threatened battalion.

A dog that would have received the V. C. if his keeper, Corporal Coull, could have given it, was a black retriever cross named Dick, also serving in the Villers-Bretonneux sector. While carrying a message he was badly wounded in the back and shoulder. He completed his run and then was sent to the section kennel, where a veterinary surgeon treated his wounds. They healed quickly and soon he was back in the line and hard at work. A few days later he went lame and was seen to be suffering. As he did not improve under treatment, he was given his long release. The post-mortem examination revealed a bullet lodged between the shoulder and the wall of the chest, and in the small of the back a shell splinter lying close to the spine. He had carried on to as near the end as he was able to go.

In the famous attack at Kemmel Hill the messenger dogs did splendid work under almost impossible conditions. We find the names of Boxer, an Airedale, and Flash, a lurcher, both working with the 34th Division, carrying dispatches over ground belly-deep in mud. We read of Boxer going over the top with the "Kents" at daylight, of his being released with an important message at 5 A. M. and of his coming back four miles in 25 minutes. The time doesn't seem fast until we consider the condition of the ground, or until we learn that two hours was the best that a man could do.

And we read of Peter, known officially as No. 78, and of Trusty, No. 79, winning high praise from the officers for running fast and fearlessly day and night until a shell killed them both, together with the runner who was taking them to the front line to await further orders.

Official reports of matters at the front are often brief, but sometimes they are full of suggestions for those with

sufficient imagination to read between the lines. Here is one with regard to:—

“DOGS

“These are most useful. In the right Brigade the first intimation received that the final objective was reached was brought back by a dog in 40 minutes. Dog 54 was shot by a German officer, who in turn was shot dead by an officer of the 6th Wiltshire Regiment. This dog was reported killed in error by the Brigade, as it subsequently turned up. In the left Brigade a message by a dog was received in 50 minutes saying that the Bluff had been captured, distance covered 6,000 yards. Another message came back by dog which was important to the Division on our left.

“Some of the dogs had never been in the line before, and considering this, their work was good throughout.”

Many English messenger dogs did splendid work in France, but perhaps none performed more important service than Tweed, a bob-tailed sheep-dog. When he arrived at the War Dog School, Tweed was mistaken for a dunce. He did not seem able to snap into the work, and came very near being counted a failure. Fortunately he had to pass through the hands of Mrs. Richardson who discovered that it was not lack of ability but extreme shyness that was holding him back. Gently and patiently she gained his confidence and encouraged him until his fine character shone through his seeming dullness, and then under the skillful handling of his keeper, Private Reid, he developed into one of the most reliable messengers in the British Army.

Tweed went on duty with a Scottish Canadian regiment at Amiens in 1918. The Germans broke clean through and cut off the British front line, and had they gone but a little further would probably have captured

the town. Three dogs were sent to the headquarters of the French Colonials, 3 kilometers back, with the message: "Send up reinforcements and small round ammunition." Tweed ran through the German barrage and arrived in ten minutes, the French were sent up, straightened out the lines, and saved Amiens from the Germans.

While this was undoubtedly Tweed's most important, it was by no means his only service. On one occasion, when a battalion of Australians had moved forward and were in a tight position, they had great trouble with their messenger service. Their wires were destroyed, no runner could cross the open in daytime and pigeons were not reliable at night. They sent for Tweed: they knew that he would go through at any time if it were caninely possible. He made three successful night runs for them, all important and one of them very important. On this occasion he was out with a patrol which discovered that the enemy was planning a raid. A few minutes later Tweed was speeding through the darkness with the message: "The Germans are preparing for a raid," and that was one of the raids that didn't come off.

Later Tweed was detailed to serve with the Canadians at Paschendael, and one night his battalion was ordered to move up and support the Third Division. The trenches were very wet and Tweed did much for the comfort of the men when he carried back the simple message: "Moving forward tonight. Send socks for men and some S. O. S. lights."

What was said to be the most reliable British messenger dog in France was "Little Jim," officially known as No. 36. Jim's parentage was most unusual, for he was a cross between a retriever and a Pomeranian. In color he was as black as the Kaiser's heart, but we may surely be allowed to paraphrase our Kipling and add

"But for all his dirty 'ide
He was white—clear white, inside,
When he carried his dispatches under fire."

Jim was no more afraid of the noise of bursting shells and the whine of machine gun bullets, than he was of the skylarks which were sometimes heard singing in the midst of a barrage. His speed, especially for a small dog and over rough ground, was said to be almost unbelievable. I asked a soldier who had once seen him coming from the front lines to headquarters to describe the scene for me. "Why," said the man, "there's nothing to describe. I didn't really see a dog at all. I just saw a black streak across the shell-torn ground, and the men shouted 'there goes Little Jim'."

And in the very beginning Good Luck had marked this flash of black lightning for her very own. The soldiers said he never stopped anywhere long enough to be hit. However that may be, he never was hit, and he never was gassed. Another messenger dog, Blue Boy, was killed in his very first attempt; Whitefoot and Paddy delivered their messages, but were so badly gassed that they had to spend three weeks in the hospital, and many of the human runners who attempted to get through were killed or badly wounded. But no matter how savage the shell fire or how heavy the gas barrage, Little Jim got through somehow, and always unhurt. He was in charge of Private Osborne, and we learn of the pride this man took in his dog from the last line of a report on Jim's work, sent to Colonel Richardson: "His worth is beyond value and his services beyond praise, and I feel honored to take care of such a very serviceable animal."

Poor Paddy seemed to be a favorite of misfortune. He had hardly come out of the hospital when he was

gassed again in the front lines, 17 kilometers from "home."

How he got back no one will ever know, but his keeper, MacLeod, found him lying in his kennel totally blind. But he was a very long way from being dead, and eventually he recovered both his eyesight and his health.

The last I heard of this dog he had gone with the infantry almost to the top of Paschendael Ridge, when an officer and a runner took him with them when they went to search a farm house. A German rushed out and shot the dog which was left for dead. But he wasn't dead—not quite. For hours he lay there in the rain, but at last he regained consciousness, and though very weak from loss of blood he crawled back to Brigade Headquarters and "reported." His keeper was sent for and he came. Whether he succeeded in once more restoring his dog to health I never heard, but somehow I'd like to bet on Paddy and MacLeod.



MESSENGER DOG WITH METAL TUBE FOR CARRYING THE MESSAGE.

FRENCH MESSENGER DOGS

THE French divided their messenger dogs into two classes—"estafettes," those trained to run with a message from one point to another, and "liaison" dogs, trained to do the same thing and then return, perhaps with an answer to the message, to the place from which they started. The instruction of an "estafette" could be effected in about six weeks, but three months were required to turn out a good liaison dog. The training in both cases consisted chiefly in getting a dog to run from one man to another, over greater and greater intervening distances as its education progressed. The French trainers worked each pupil about two hours a day, and a tit-bit was given when he left the starting point and another when he reached his destination. A good messenger dog would work between points three-and-a-half,

or four, miles apart and an exceptionally good one would cover five miles or more.

Canine messengers were often used to establish communication between the front lines and the nearest headquarters. A dog being so much smaller than a man was more likely to escape observation, and even when observed his smaller size and greater speed made him a much more difficult mark. During one of the fiercest German attacks upon one of the strongholds surrounding Verdun, seventeen human "runners" were killed in rapid succession, while the one available liaison dog made several trips back and forth unscathed. To be sure he was killed at last, but not until he had crowded a fine life's work into a few glorious hours.

It was at Verdun also that Satan, one of the famous messenger dogs of the War, made his great run, which saved a town and its garrison. It was a very small town, but it occupied an extremely important position, and the garrison, consisting of several hundred French soldiers, had orders to hold on until they were relieved; and when the enemy succeeded in cutting them off from their friends in the rear, they fought on bravely. For days they had hindered the German advance, answering the enemy batteries with a steady stream of shells. But now their ammunition was giving out, and there was no way of getting more, for the enemy was in possession of every road. Worst of all, the Germans had managed to plant a battery on the left in a position from which it could pour a deadly fire into the French town. Owing to the shortage of shells only a weak reply could be made by the garrison. If the latter could only let the French army know the position of that battery, it might yet be silenced in time. But there was no way of letting it know. The telephone and telegraph wires had been

cut, the last homing pigeon had been killed by a bursting shell, and every other means of communication was destroyed.

With the French garrison was a famous dog trainer named Duval from the War Dog School at Satory. He had been sent to the front with two dogs, Rip and Satan, both in the messenger service of the French army. Rip, a soft-eyed Irish setter, was killed in action soon after his arrival, and Satan had been left with the French troops two miles in the rear of the now isolated town where his master was stationed.

Satan was an ideal messenger dog, swift-limbed, intelligent, and absolutely fearless under fire. He was black as night, a mongrel by birth, but a thoroughbred by nature. His father was a champion English greyhound, and from him he inherited his speed. His mother was a working Scotch collie who had won more than one silver cup at the sheep dog trials in Scotland.

Satan loved just one man in all the world and that man was Duval. Together they had walked several times over the ground which now stretched between them, and Duval knew that if their friends in the rear had any message to send, Satan would bring it if it could be brought. So every little while he would raise his head cautiously and look out over the shell-torn ground in hope of seeing his dog. At last he started forward with a great cry, "Voila! Satan! Satan!" At first his companions could see nothing but a black speck moving toward them from the distance. But presently the black speck took the form of a dog, a black dog wearing a gas mask and skimming the earth as he came. As he raced over the rough ground and leaped the shell holes some of the men declared that he was flying—that they even saw his wings. But the ground was fairly

smoking under the enemy fire, and no one but Duval believed that even this great speed and courage would save him from death. Perhaps they were right, for down he went as a German bullet found its mark.

Duval saw him as he fell, and saw him stagger to his feet again, confused and faltering. Taking his own life in his hands the man leaped to the top of the trench wall in full view of the enemy, and heedless of the bullets which sang around him shouted at the top of his voice:—

“Satan! Satan! Come, mon ami! For France! For . . . I” A bullet cut him down.

But Satan had seen and heard, and with a frantic yelp—of pain or joy no one could tell—once more he was into his stride. On three legs now, and with the fourth swinging loose at the hip, he moved swiftly toward the fort. As he swept into the town a dozen hands caught him, and from a metal tube on his collar they took a message which read:—“For God’s sake, hold on. Will send troops to relieve you tomorrow.” It was signed by a well-known officer whose word could be relied on, and a cheer went up from the weary men. But how could they hold on? How was it possible with that German battery withering them with its fire? But the metal tube containing the message was not all that Satan had brought them. What some of the men had mistaken for wings on his shoulders were two little baskets, and in each basket there was a homing pigeon scared almost to death. An officer took a message pad of tissue paper and wrote upon it:—“Silence the battery on our left.” Then he added some figures showing the exact position of the battery. The message was folded and placed in a small aluminum capsule, and that was attached to the leg of a pigeon. A copy of the message was entrusted to the other bird and both were

tossed into the air. Away they went as if they knew the importance of their work, and the men in the town watched them as they sped toward the French lines far away. Then a score of German rifles cracked and one of the little messengers fell earthward with a mist of blue-grey feathers in his wake.

But the other pigeon passed through the hail of bullets unhurt, and flew straight to his loft, where an alert young officer caught him up. The anxious men of the garrison did not see their message read, nor could they hear the sharp, terse order given to the waiting gunners. But they heard the deep roar of the big French guns which smothered with bursting shells the German battery on their left, and they knew that the town was saved.

When the French army took the field in 1914, probably there were not a dozen liaison dogs in it, and even the few there were went out unknown to the Ministry of War and G. H. Q. The 17th Battalion of Alpine Chasseurs had six, trained privately by Lieutenant Buer, and while they lasted they proved very valuable, the more so since the fighting was mostly in the open country, trench warfare not having been generally adopted. By January 15th all six had fallen on the field of battle, and at that time it was impossible to replace them.

Six months later, the trainers of the Military Kennel of the 7th Army, shortly after their arrival at the front, gave a most convincing exhibition of liaison work with two dogs trained before the war. General d'Armau de Pouydraquin commanding the 47th Division Infantry and some of his staff officers who saw the exhibition were so impressed, that a few days later, Sergeant Még-

nin, Director of the Kennel, received from General de Pouydraquin an order which read:

"Kindly supply the following:

"1. Captain Watrin of the 75 outfit of the Artillery Regt., Bichstein, with one liaison dog for service between Command Headquarters of the outfit at Bichstein and the Battery Commander Headquarters at Schildmatt.

"2. Commandant Huot, Chief, 62nd Battalion Chasseurs, at Sulzeren, with three sentry dogs and one liaison dog."

Next day Sergeant Mégnin reported to Captain Watrin with a lithe, wide-awake bitch, a cross between Alsatian and Belgian Shepherds. The dog's task was not an easy one as she had to swim a river, race across a field that was under enemy fire, and climb a hill over 1500 feet (500 meters) in order to reach the Post Command, and then, after delivering her message, re-



MESSENGER DOGS WITH THEIR KEEPERS GOING ACROSS COUNTRY UP TO THE FRONT LINE.

turn to the starting point. She made the trip in remarkably fast time, and a little later when the telephone and telegraph services were destroyed and buried twenty centimeters deep by the enemy fire, she carried through a message which resulted in the bombardment of a group of buildings outside of Münster in which the Germans had established their staff headquarters.

From this time forward more and more messenger dogs were used by the French army, and they made good. During the terrific attacks of 1918 in Champagne, when General Gouraud skilfully withdrew the main body of the Fourth Army, leaving small bodies of steady troops at strategic points to hold the Germans in check, "estafettes" and liaison dogs continually kept him informed of the enemy's movements, and in touch with other events as fast as they developed. Several of the men handling these dogs were cited in dispatches, and received decorations for heroic work.

Messenger dogs did equally well on the Marne. Lieutenant Maillard, Director of the Fourth Army Kennels, sent to M. Clemenceau, Minister of War, the following report of the work done by messenger dogs and their managers serving with the Fifth Army during the engagement of July 18, 1918:—

"Three of our dog managers of the 8th Infantry Division have been cited. On July 18, this division was fighting on the northern bank of the Marne, and, in spite of heroic resistance, was compelled to fall back. The dog managers did not retreat until they had received and placed in the hands of the Command, the messages carried by their dogs, which had performed remarkable liaison service day and night under heavy fire and without any preliminary reconnoitring of terrain. . . ."

The Minister of War caused a copy of this letter to

be posted in every army kennel, and the names of the dogs to be placed on a roll of honor.

Two of the men cited had had a thrilling experience. Their duties completed to the last detail, they took their dogs and fell back to rejoin their regiment which had retreated to the other side of the Marne. The bridges had been destroyed and the river was under enemy fire. There was nothing to do but cross it. One of the men was a fine swimmer, and, coupling his two dogs, he sprang into the water and called to them to follow him, which they did. But the other man could barely swim and knew that he never could make it alone. Nevertheless he coupled his dogs, and entering the water with them, ordered them across. Away they went, and he after them, holding on to the leash, and slowly they carried him across until friendly hands seized him when he reached the bank.

The painter, Mandineu, made this incident the subject of a picture which shows the poilus crossing the Marne with their dogs.

Few messenger dogs showed finer spirit than one which served with the 11th unmounted cuirassiers during the Somme offensive of 1917. He had been captured from the Germans and nicknamed Von Kluck. After a period of training, during which he learned to take commands in French, he returned to the front to fight for France. Under savage machine gun and shell fire he established liaison between one of the battalions in line and the Colonel's headquarters. During one of his trips a bomb burst close to him and he was thrown many feet into the air. For about ten seconds he lay where he fell, possibly stunned by the explosion, and then he got on his feet, gave himself a thorough shake, and finished his journey.

Von Kluck met a soldier's death. One day an officer was waiting for a message, and seeing the liaison dog taking things far too easy, impatiently called upon him to hurry. It did not occur to him that the messenger might be wounded, until Von Kluck instead of responding, slowed down to a stiff walk. A minute later he crawled in with the message, and died at the officer's feet.

The value of messenger dogs, like the value of the auxiliary sentry dogs, is attested on the highest authority. General Boichut, who commanded the 163rd Division, was a thorough believer in them. He wrote: "Dogs have rendered excellent service under fire and saved the lives of many human runners. The experiments in establishing a difficult liaison between infantry and supporting artillery have been entirely successful in a battle where the bombardment was extremely heavy." He added: "This system is to be further developed and extended. Dog liaisons will be maintained between group commanders and remote observation posts and batteries."

The Chief of Staff of the 132nd Infantry Division gives similar testimony concerning the messenger dogs used in the battle of Champagne on July 15th and 16th, 1918, concluding with the advice that "it is very urgent that dogs killed during fights be replaced at once."

General Mordacq, when commanding the 24th Infantry Division, had occasion to use many liaison dogs, and on June 30th, 1917 reported that "several dogs have been killed while carrying messages at Verdun, Maisons de Champagne, and Auberive. They did remarkable work at Maisons de Champagne. Several times a day, under intense fire of heavy and poisonous shells, they traversed 1,500 meters in nine minute's time. They

enabled the colonel commanding an assault unit to keep contact with the division infantry."

It was the same on all fronts where dogs were used. General Goybet, commanding the 25th Division, wrote at the end of 1917: "The 98th Infantry regiment still has two liaison dogs which performed liaison at Avo-court through the heaviest barrages, and which during the fierce attack on Nassoule brought messages from the attacked battalion under heavy fire, telephone connections and T. S. F. outfit having been smashed up and runners killed or wounded. I am a staunch supporter of this mode of liaison."

A number of men connected with the dog service were cited for conspicuous bravery. The list is headed by Lieutenant Eugène Mégnin, 19th Squadron army train, 50th company, whose citation reads:—"Very courageous officer. His example greatly contributed to maintaining liaison dog service where no other means of liaison was available."

His assistants, Privates Eugène Rey, Joseph Audouin, Pierre Galand, and Alexandre Courbet, were also cited for their splendid work with liaison dogs.

Nor were the dogs themselves forgotten. Many of those that had rendered exceptional service, had their deeds recorded on their certificates of identification. Thus we find

"Picard, No. 1289 B.—On March 28th, 1918, was particularly conspicuous during a coup de main, making four runs over a distance of 3000 meters in spite of rifle fire and heavy barrage."

"Follette, No. 428 B.—Fatally wounded in the Battle of the Somme, while carrying messages under heavy fire. Died at headquarters after completing her day's work."

"Médor, No. 310 B.—Very badly wounded August

27th, during Somme battle, while carrying messages under heavy fire. Finished his trip and died two days later."

"Pastou, No. 1163 B.—An infantry company attacked by a considerable German force in March, 1918, was almost surrounded and a triple barrage fire prevented retreat. The commanding officer dispatched three runners one after another, but all of them were killed. He then sent to the Battalion commander this dog, with a message telling of the critical position of his company. Pastou covered the 3,000 meters in about eleven minutes. Reinforcements were sent up in time to deliver 48 men, all that were left of the entire company."

When we consider that in many of these fights the barrage fire was supposed to be so heavy that no living thing could pass through it alive, we cannot wonder that so many of the messenger dogs were killed—that so many of the reports of them read like this one:

From: Lieutenant Gontail, officer in charge of liaisons
in 16th Infantry Regiment,

To: Lieutenant Maillard, Director of Army Kennel,
Fourth Army.

"By instructions from Headquarters, I am forwarding to you four certificates of estafettes and liaison dogs—Pompon, Roussot, Encre and Amande—which we have lost during the last severe fights from July 29th to August 12th. The dogs gave their utmost cooperation in this big affair, but out of ten these four were either killed outright or so badly wounded that they could not recover."

ITALIAN WAR DOGS

THE Italian army used about 3,500 dogs, chiefly in the Alps, from Val Gindicarie to the Adamello. Most of them were mongrels of the St. Bernard type, from the Franco-Italo-Swiss border. They were of large size, weighing from 125 to 150 pounds, usually white with reddish markings. The best of them had heavy coats which could withstand the cold at great heights.

It was in the transport almost exclusively that these dogs were used, some in harness, others as pack animals. Those trained to harness were sometimes used in stoutly-built carts, each laden with a great hogshead of water for the soldiers working on the military roads over the mountains. In the winter they were hitched to sledges, with loads of food, or ammunition, weighing perhaps 250 pounds. Often a party of ski-runners, camouflaged in snow white uniforms led the way, breaking out a path, in which the dogs followed with their sledges, the drivers walking each behind his own team. Every sledge had a step at the back on which the driver could mount when going over easy ground. There were also handles on which the driver could push to assist his team when the going was bad.

But at times there were places where not even a sledge could go; where, on account of the steepness of the trail and the condition of the snow, not a mule, nor even a donkey, could deliver the needed supplies. Then the dogs were equipped with cloth pack saddles, laden with food, surgical dressings, mail, ammunition, or even

light guns, and sent in squads of 30 or 32, usually in charge of a corporal, who was responsible for the health and general welfare of his animals. As each dog carried a load of about 60 pounds, it is seen that a squad of pack dogs would deliver about a ton of transport at every trip. They were so light compared with pack horses or mules, or even donkeys, that they could often travel on snow crust when the heavier animals would have broken through, and there were few trails so steep that they could not scramble up. After their packs had been adjusted at a supply station, their driver gave the order "Avanti!" and away they went, usually very gaily because they were fresh and had been well fed. When the trail forked the simple order,—*"a destra!"* or—*"a sinistra!"* was enough to swing the squad to the right or to the left, as the case required. The driver would often call them by name, especially when the animals began to tire, or if they got into difficulties. Their names were often the names of mountains or of people, and at times a pass would ring with cries of *"Ortler," "Pasubio," "Jena,"* and *"Telena,"* accompanied by words of encouragement such as *"Forza"* (go on), *"coraggio"* (courage), or in case of a lame or wounded animal *"poverino"* (poor fellow).

A good many dogs were lost, some through falling down crevasses; some from enemy shells and bullets. Others were wounded, and for these hospitals were established at safe points, one such *"infermeria cani"* being at an altitude of 3,000 feet.

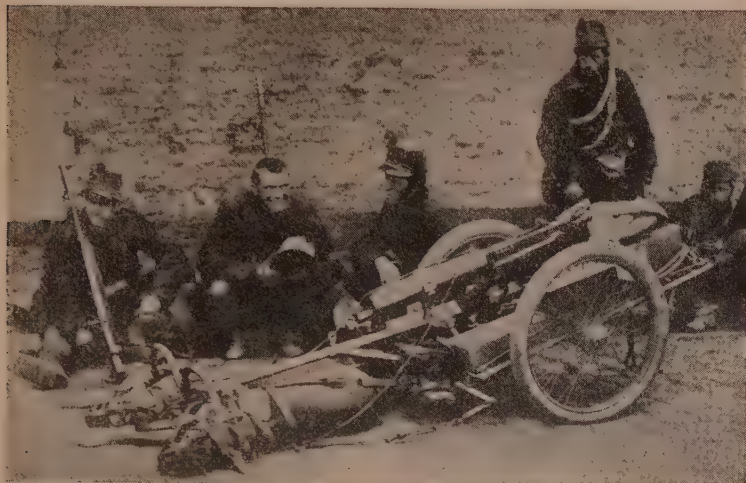
The soldiers were very fond of their canine allies, and when the dogs arrived at the peaks or ridges with loads, they were often cheered and patted and made a great deal of. Indeed they were treated much like the men.

Each dog was given exactly a soldier's rations—coffee and bread for breakfast; broth, meat, bread and water, for lunch, and meat, bread, sugar, and chocolate, for dinner at night. They were housed in special wooden huts erected at points safe from bombardment.

BELGIAN WAR DOGS

FOR centuries dogs have been used as draught animals in many parts of Europe, notably in Belgium, Holland, Switzerland and northern France. Attached to small two-wheeled carts, they draw vegetables to market, and deliver milk and light merchandise of all kinds to the houses in the cities. They are also used on the small farms for churning milk. A churn is attached to a small treadmill, and a dog trots up the revolving incline until the butter is made. As a rule these animals are fairly well treated, and special laws have been enacted for their benefit. The little carts are nicely balanced on their axles so that the weight of the load rests on the wheels, and not on the shoulders of the dog. The Belgian police are instructed to stop any driver who is using a dog without proper harness, which should include a broad flat band for the chest, for it is by his chest that he pulls. Properly equipped, and on a hard level road, a good draught dog can draw 500 pounds, and a pair can pull half a ton. It seems quite natural, then, that when the war broke out, and when everything useful was being pressed into service, the Belgians did not overlook their stanch draught dogs.

Among the first to use them after the Germans broke into the little country were the refugees, and on the roads it was no uncommon sight to see one of the dog carts, laden with household furniture, and perhaps with children perched on top, being drawn out of the invaded territory by a broad-chested dog with a stub tail, its



BELGIAN DOG GUN TEAM WAITING FOR ORDERS, RESTING IN REAR OF THE FIRING LINE DURING THE PRESENT WAR.

owner assisting by means of a chain or rope attached to the axle. At that time there were only a few draught dogs in the army. Several of the machine-gun companies had four each, but at the call to arms the government requisitioned all that were needed.

A Belgian officer on duty in Antwerp when the first lot of civilian dogs from that section were turned over to the army, told me what a pathetic sight it was. Dozens of men brought in their beloved pets and helpers, and in many cases the parting was very hard. They told the soldiers the names of the dogs, dwelt fondly on their peculiarities, especially what they liked best to eat, and exacted promises that they would be kindly treated, and brought back to them when the war was over.

Their work in the army consisted in drawing light-running, two-wheeled, machine-gun carriages with a maxim-gun mounted in each, or ammunition carts to

supply these guns, or water carts to carry drinking water to the gunners.

Because the dogs were already broken to harness, their military training was usually quite easy. They quickly learned "en avant" (forward march) and when the command "Haltel!" was given, the soldiers caught and held the cart to show the dogs that it meant to stop. At the command "Couchel!" the men laid hands on the dogs' backs and pressed until they lay down, and at the order "Debout!" the animals were pulled to their feet. The work of training was speeded up by harnessing a recruit with an old machine dog who knew and obeyed every military order promptly.

When the guns went into action, the work of the dogs was often dangerous but usually simple. An officer ran forward and selected the gun position, and at a signal the dogs leaped in their harness and carried the gun to him at full gallop. The gun crew lifted the gun, tripod and all, out of the cart, and set it on the firing line, while one man swung the dogs around and ran them back with the empty cart to the nearest available shelter.

Twelve companies of dog-drawn machine-guns were used in the Belgian army during the war, and approximately 500 dogs were drafted to draw these guns and the ammunition wagons and water-carts which accompanied them. They were nearly always at the front and did splendid service. They took part in the battles of Liège and Namur, were in action close to Antwerp and Louvain, and assisted in the capture of 500 prisoners at Aerschot.

A good many gun-dogs were killed in action, and many more were wounded. Well behind the lines there was established what might be termed a dog "remount depot," where fresh dogs could be obtained as needed. In connection with this there was a dog hospital, where

sick and wounded animals received medical and surgical attention.

When campaigning, the dogs were fed once a day and watered three times a day—sometimes oftener when the weather was warm and opportunities frequent. In winter they often slept across the legs of the gunners for mutual warmth. Every morning they were groomed with curry-combs and brushes, and now and then they were given a bath, usually without soap. When, on the march, they came to a river or creek, if there was time the dogs were permitted to refresh themselves by taking a swim.

A section of the machine-gun company, including ten dogs, with their guns and carriages, ammunition and water-carts, came over to this country in charge of Lieutenant Joseph Scheppers of the 7th Regiment, Belgian army. After a rough voyage, during which the dogs were very seasick, they landed here in good condition and made a tour of the principal cities to take part in some Victory Loan parades. There must be many who still remember "Max" and "Bonnot"; "Baron" and "Bamboula," and their fellows, those steady-eyed, four-footed warriors who strode through the streets, with a modest dignity which befitted veterans who had fought for the right. They were feasted and honored throughout their stay, and were almost as popular as the handsome young officer who brought them over. The latter entered into the spirit of the parades, of which he and his dogs were a feature wherever they went. On one occasion in St. Louis, when Bamboula barked sharply at a young woman who was trying to pat him, she jumped back and said to Lieutenant Scheppers "Why did he do that?" "He said 'buy a bond' *Made-moiselle*," answered the Belgian officer, smiling; and the girl, being a good sport, laughed and bought one.

GUARDING WAR PRISONERS

IN November, 1916, a report was submitted to the General Inspector of War Prisons, suggesting that, inasmuch as the Germans were using trained dogs to guard their war prison camps, a similar dog service might be valuable in the French prison camps. The answer was that having sent an official protest to the German government against such use of war dogs, the War Ministry could not sanction the practice in its own army. Nevertheless there was nothing to prevent an unofficial trial, at least, and a dozen dogs were sent to Dijon to help guard the German prisoners in the fortresses in that vicinity. The results were entirely satisfactory, but no further trials were made until 1918, when the General Inspector of War Prisons asked to be supplied with canine assistants to supplement the greatly reduced guard personnel. Then many prison camps were provided with dogs, to discourage escapes, to track prisoners if they succeeded in getting away, and to hold up German aviators who might, purposely or accidentally, alight behind the French lines. Trustworthy reports show how well these dogs performed their duties. At a prison camp for non-commissioned officers at Saint-Martial, in September, 1918, the prisoners were being taken for a walk, when an Austrian, under the pretense of picking wild flowers, lagged behind and attempted to escape. A guard dog, Caporal, known officially as B.1526, went after him without instructions, bit him in the thigh and literally drove him back into the column.

On another occasion at the same camp, four "non-coms." attempted to escape by cutting the barbed-wire fence. Three of them were captured by sentries, but the fourth got away. Caporal was put on his trail, caught him just as he was entering some dense woodland, and held him by the calf of the leg until sentries arrived.

Two very good dogs were put on duty at the frontier station at Bellegarde, where quite frequently prisoners escaped by hiding in Swiss supply trains. They were put in charge of two customs officers, who before the war had used dogs for capturing smugglers along the northern border of France. One of these men wrote to the trainer only a day or two after the arrival of the dogs:

"Tsekoff made himself known the first night he was on duty (September 4-5) by discovering two Boches who had concealed themselves in a flour wagon. Only in my opinion he did not bite them enough. They were sorry looking objects."

These and many other records tend to show that dogs did their duty behind the lines as well as at the front.

THE WAR BLIND IN FRANCE

THERE is nothing in the annals of the war dogs more touching than the service which some of them have given as guides to ex-soldiers who lost their sight while performing their duty. Not very many dogs rendered this service, largely because of the feeling that a blind man led by a dog must necessarily appear to be an object of charity. There is some ground for this feeling, at least in the city, where it might be difficult to distinguish at a glance a sightless soldier from a blind beggar. But in the country, and in small towns and villages, where a man is known to all his neighbors, surely this objection does not hold, and in such places may be found not a few whose fields of activity have been greatly widened by accepting the services of well-trained dogs. Some of these animals were drawn from the ranks of those too small to serve in other capacities. Others were dogs which had served at the front, and had come back, in some cases badly wounded, to recover and to take special training for a more peaceful occupation.

That he may lead his master safely, a blind man's dog is taught that he must never cross a road if he sees or hears a vehicle approaching, and never descend a steep path without stopping for a moment by way of warning. If there is a stone heap or other obstacle in the path, he must tug on his lead while still some distance away, and conduct his master around it. Furthermore, he must never pass under fence rails and such like barriers, because his master cannot follow.

This seems a good deal for a dog to learn; yet the training occupied only two months at the outside. Very intelligent dogs were letter perfect in six weeks.

When a blind man applied to the War Dog Service for a canine companion, the latter was delivered to him by a trainer who usually stayed for a day or two, until the dog and his new master had become acquainted, and until the former had learned all the routes on which he would be expected to travel. He was taught to stop at the houses of special friends, at the shops where his master dealt, and at the office where the ex-soldier would have to collect his pension.

In selecting dogs for this work some attention was paid to special requirements. For example, a blind officer in charge of an important farming enterprise in Morocco, was supplied with a fine sheep dog which had been wounded while serving on patrol duty at the front. This companion, having had a broad education, would not only guide his sightless master but, if necessary, defend him from attack.

One letter addressed by a blind man to the head of the War Dog Service, will suffice to show how such dogs were appreciated.

Landevieille, January 2, 1919.

Dear Sir:

I have the pleasure to inform you that on December 24th, I received the little dog I asked for. He was brought by M. Georges-Marie Hervé, first class trainer at Plessis-Trévisé, who has taught me how to handle him and given me all sorts of useful information concerning the matter. I am very pleased with the little dog; he is well-trained and intelligent and will be very useful. His name is Macabre, from Paris, No. 1727 A. I have been out several times with him and he has behaved splendidly

every time. Yesterday, for instance, I went more than a kilometer away from home and he brought me back without accident. This gives me a feeling of independence.

Please accept, sir, my best thanks and the expression of my deep gratitude and appreciation.

Yours respectfully,

ÉPAND, RAPHAËL,

Chair and Basket Weaver,
Landrevieille, Vendée.

After the signing of the Armistice the following letter was addressed by the Marshal of France, Commander-in-Chief of the French Armies, to M. Clemenceau, Prime Minister, Minister of War:—

G. H. Q., French Armies—Staff—1st Bureau
Organization, No. 7414

The Marshal of France, Commander-in-Chief of the French Armies in the East.

To the Minister of War.

“War dogs are about to leave the army in which they have rendered distinguished services, particularly in liaisons and supply services.

The credit for the good results achieved belongs for the greater part to Commandant Malric and his assistant, Lieutenant Mégnin, to whom I would appreciate your forwarding some acknowledgment of our satisfaction.”

By order,

Major General Buat.

“The General, Chief of the Military Staff, is happy to join his personal congratulations to those of the Marshal of France, Commander-in-Chief of the French Armies of the East, for the

efforts accomplished and the results achieved by Lieutenant Mégnin.

For the Prime Minister,
Minister of War.

and by order:—

General, Chief of Staff
(Signed) Mordacq.

Lieutenant Mégnin adds:—"Good dogs! brave dogs! you well deserve such praise. You did more than your duty. Thank you."



LIFE-SAVING PIGEONS ATTACHED TO THE NAVY. RELZASING A PIGEON WITH MESSAGE FOR HELP.

PIGEONS

TRY to imagine yourself clinging to the half-submerged wreck of a seaplane out in the North Sea twenty miles from shore, wet to the skin, chilled to the bone, and desperately weary. Hours before, you have released a homing pigeon with a message calling for help, and you hate to admit how little faith you have in its reaching its loft at all, against that wind and rain, let alone in time to be of any use to you. Yet you know it is your only chance. Night is coming on and if that bird has not reached its home, your name will be published in the next casualty list. Then as your hope is

dying, and you are trying to behave as brave men should, a lean greyhound of a destroyer comes racing up out of the fog. As you are taken aboard to warmth and dry clothes and food—to life and all that life holds dear, you are told that the destroyer had been sent in response to a message brought by the little homing pigeon which fell dead from exhaustion as it entered the trap. You'll have something new to think about. You may not have much sentiment; you may not be interested in bird conservation, but it's pretty certain that unless the North Sea has washed all the decency out of you, you'll walk a long way to vote against live pigeon shooting the very next chance you get.

As may be supposed, the pigeon used as a war messenger was not the ordinary variety commonly seen on the barns in country places, but a special breed which originated in Belgium, and which was developed chiefly in Liège, Verviers, Brussels, and Antwerp. It is the only pigeon capable of homing from very long distances. Although during the war and at other times it has been referred to as the "carrier" pigeon, the "carrier" is an entirely different breed which long ago came from Bagdad, and which in the early days of pigeon racing in England was used for short distance flights up to 100 miles. The homing pigeon was used by the French with great effect during the siege of Paris, 1870-1871, and soon thereafter, the English fanciers got in touch with Belgium, and the "homer" at once replaced the birds then used for racing purposes—the "carrier," the "horseman," and a cross between these two, known as the "dragoon." Because of the use to which it is put in peace times, it is now generally spoken of among English pigeon flyers as the "racing" pigeon. The

French and Belgians call it "pigeon-voyageur" and the Italians "colombo viaggiatore."

The marvelous homing instinct of these birds, known also as the "instinct of orientation," has been the subject of much study and contradictory explanation. It is now however coming to be generally regarded, not as a special, mysterious, unchanging instinct, but as a combination of certain very acute faculties, attention, observation, memory, will, and the sense of direction, each of which is capable of great development and modification through education, and the constant stimulation of desires. The intensive training and study to which these wonderful birds were submitted during the War showed how much there is yet to be learned concerning them. They are extremely sensitive, and their powers are by no means equal. It is probable that this great sensitiveness enables the bird to perceive magnetic and atmospheric impressions, and to determine the direction of the loft, either at the time of departure, or when, during flight, he may have lost his way owing to unexpected variations in the weather. As is the case with the training of all animals it is the men that have these delicate organisms in their care, and the necessary intelligence, firmness, patience, and love, who are responsible for their development, their usefulness, and their success.

Racing pigeons by reason of this strong desire to return to their homes, their splendid powers of flight, (they have been known to fly fifteen continuous hours), and their remarkable memory for places, may be trained to fly great distances to definite points—viz., the points at which their lofts are stationed. Many pigeons have flown 500 miles, some have records of 700 to 800 miles, and a very few have actually come back a thousand miles or more. But such birds are the best athletes of their

breed, and their performances are usually made under the most favorable conditions which can be arranged for them. They are trained almost to the day, they are handled throughout by men who have expert knowledge of every detail of the game, and the weather selected is often such as to give the birds every advantage of wind and visibility. Even thus favored, the very best of them could not be relied upon to cover these very long distances with speed and regularity. There would always be a doubt as to their return; a greater doubt as to their prompt return.

In war, especially at critical moments, doubt as to the prompt delivery of important messages must be reduced to the minimum. For obvious reasons it was not possible to give the birds the very careful, skillful handling they received for racing in time of peace; it was not possible to select the weather in which they should fly, because battles are fought in fog and rain as well as on pleasant days. But fortunately it was possible, as a rule, so to regulate the distances to be flown as to make these splendid birds almost infallible in any weather and under the most trying conditions.

The question of good communication is one of the most important in modern warfare, especially during actual fighting. The vast number of men engaged, the wide territory over which they are distributed, the interdependence of artillery, infantry, cavalry, tanks, air forces, and other branches of the service, and especially the distances which often separate the fighters from the men who are directing the fighting, make it imperative that commanding officers be kept informed of what is going on at the many points involved. The shells of a particular battery are not finding their mark; the observation officer far ahead of the guns must notify the

gunners in order that the aim may be corrected. A certain part of the line is weak, and needs reinforcements; that information must be sent to some officer having power to send up the relief. A battalion has advanced too far, and has been cut off by the enemy; it can be saved only if troops are sent forward promptly to save it; so the fate of that battalion depends upon the ability of its commander to communicate quickly with someone having the reserve troops, and the authority to send them. In short, the winning of a great battle may depend upon a single message reaching its destination on time. So very important then was a reliable system of communication, that no stone was left unturned to make it complete and effective. Many were the agencies employed. Among them were the telephone, ground and wireless telegraph, signal lanterns, luminous signals, messenger dogs, mounted couriers, runners, scout detachments, and aviators. Each one of these was useful, each had its special advantages, but there were times and places when a single homing pigeon flying a mile a minute and knowing exactly where it was going, was worth all of them put together.

That at least one of the Allies regarded pigeons as by far the most reliable messengers which could be employed during attack, is evidenced by a certain French Army report, which at the time it was written was considered "confidential". The writer, after enumerating the disadvantages of several other means of communication, concludes as follows:—

"Pigeons *only* can work regularly, and, in spite of bombardment, dust, smoke or fog, can bring accurate details concerning the situation of the troops in action within a relatively short space of time.

"Liaison by pigeons has rendered inestimable services

ever since the beginning of the battle of Verdun. It has won the approbation of the high command and line officers, and its regular adoption is advisable."

It is difficult indeed for those outside "the fancy" to realize what an almost inexhaustible supply of these messengers the several war departments had to draw on, until it is learned for instance, that in England alone at least two million racing pigeons, old and young are put in training every year.

Notwithstanding, however, this wide-spread interest throughout the country, the outbreak of the war found the British without official pigeon service. Wireless telegraphy having come it had seemed to the authorities that the days of bird messengers must be past. Events, however, proved them to be wrong and in November, 1914, the Admiralty decided to reorganize the Service, and a call went out for birds and for trainers, which was met, at once, by an enthusiastic response from the fanciers throughout the kingdom. Of these fanciers, one of the most interesting personalities is Lieutenant-Colonel A. H. Osman, O.B.E., Director of the British Pigeon Service during the war, whose belief in the pigeons and the possibilities of their usefulness, was as great as Colonel Richardson's devotion to the dogs and what they might be trained to accomplish. It was my privilege to meet Colonel Osman when in England, and from him I learned something of the early days of pigeon racing, and something too of the sacrifices he had made for the sake of keeping and training his birds. Pigeon racing, when he was a lad, was regarded as a low grade sport, and by persisting in following it the boy came to be regarded as the black sheep of the family, his father even going so far in his opposition as to cut him off without mention in his will. But for some reason

he kept to his pigeons, studying every book in English and French on the subject that he could find, believing that there might come a day when they might prove useful to his country. "But I was always satisfied" Colonel Osman said, "that it would be impossible to get results for naval and military work with pigeons if the pigeons were handled by naval and military people who had no love for training birds and animals. I was so convinced of this that when in the Autumn of 1914 the naval authorities started their lofts, I said that on the methods adopted they must be a failure, and to convince them I asked them to place a destroyer at my disposal to carry out some experiments from the sea. They declined my suggestion, so I hired some first-class tugs and carried out demonstrations, by which I proved that the only possible method was to have expert breeders and trainers, and to have the lofts at as short distances as possible apart, since it would be necessary for the birds to fly the shortest possible distances."

So the first British official Pigeon Service of the war was a volunteer service, and was established to bring in information from trawlers, drifters, and other auxiliary craft not fitted with wireless. The birds were housed in private lofts within the vicinity of Naval Depots and Air Stations, and many important messages were brought in by this means. The telegrams were taken by the owners to the nearest telegraph office and were there despatched, "urgent priority," to the Admiralty and the nearest Naval Station. But in such situations as arose, when every moment was of importance, it was soon decided that this method was much too laborious, and that lofts should be established at all air stations operating over the sea.

In connection with these early experimental days an

amusing story is told of a skipper of a small craft to whom were entrusted some of the first pigeons sent out for service. The skipper had not been told on what occasions he was to use the birds and it worried him. Having been supplied by the great Admiralty they must be used for something—but what? For two days and nights he wondered and worried, and then he called for a pad and pencil, and wrote, after much anxious thought and several false starts, a message. Awkwardly he attached it to one of the birds, tossed the little courier into the air, and greatly relieved, watched it wing its way towards the land. In due time the naval centre received the following information—"All's well. Just



BRITISH SEA-PLANE OFFICER ABOUT TO RELEASE DROWNING PIGEONS WITH A MESSAGE ASKING FOR HELP.

having dinner. Beef puddings." "Beef Puddings" that skipper was called ever after at the base which he served.

It was soon recognized that pigeons might be of great service on seaplanes, as when these were forced to land on the water the wireless automatically passed out of action, and pilot and observer were left without means of communicating their situation to their base. But before the birds could be employed to any extent, special methods of training had to be adopted to fit them for their work, and to train a pigeon to home from the sea is a very difficult, and, as one writer says, "a heart-breaking process." After being taught the surroundings of the loft, they had to be taught to home from gradually increased distances over the water, and many a bird which gave promise was lost during these preliminary tests. But difficult as was this work, it was generally so well done that only three per cent of the birds trained to messages failed to home. When it is realized that many of these birds were liberated in the worst of weather, during fog, rain, wind, and thunderstorms, conditions under which it would have been thought impossible for them to find their way, such a record is extraordinary. Another and lesser obstacle to be met was that of overcoming the prejudice of the pilots, who would not at first take the matter seriously. But after a machine had been shot down, and the pigeon message had resulted in help being sent, it was a different story.

Still another problem was that of finding accommodation for the birds in the cockpit of the plane, for two birds, at least, were always sent out when the distance to be traveled was over thirty miles. This problem was solved by the installation of a box, designed to rest upon the float of the machine, and so constructed that the

pigeons and everything necessary for sending a message could be contained in it.

While these and other questions were being met and solved by the Admiralty, the British army was coming to recognize the importance of the pigeons as auxiliary messengers. Birds and their trainers were being shipped across the Channel, lofts were being designed for their transportation. "But," here I quote from Major W. H. Osman, son of Colonel Osman, "it must be admitted that our French allies were much more enterprising than we were in the use of pigeons. We had some of the



Ministry of Information, London

BRITISH ARMY CARRIER PIGEONS IN FRANCE. CARRIER PIGEONS BEING SENT UP TO THE LINE.

finest birds in the world—indeed the head of the French Pigeon Service told me he considered the British racing pigeon the finest in the world. . . . Our personnel who had the birds in charge was composed of men who had been pigeon fanciers in civil life, and who were quite equal to the men of the French service. Yet our authorities could not be persuaded for some time to think the service of importance.”

Of course, wherever telephone and telegraph systems were in perfect working order, communication over any distance was assured, and no other means were required. But there were many important points at which it was not practicable to install instruments and many others where it was not possible to maintain them in working order. Such conditions almost always prevailed in the zone of attack, and it was here that pigeons rendered some of their finest service. In this zone telephonic and telegraphic communication were almost always interrupted, if not actually destroyed. Human “runners” were comparatively slow at best, and were usually delayed by barrage fire and the bad state of the ground. Visual signals were partly or wholly obscured by smoke and dust, and even aerial observation was often suspended owing to the unfavorable weather or distance from the objective. It was under such conditions that pigeons and dogs were sometimes the only reliable means of communication, and of these pigeons had many advantages. Smaller and faster and flying high above the earth, a pigeon was not hampered by mud or shell-ploughed ground, and he offered an extremely difficult mark for the enemy. Moreover, he could cover any distance required, while few dogs were reliable for more than four miles. One of the most important duties of the pigeons was to carry messages back from the front

through the dangerous zone of attack, either directly to the officers to whom they were addressed or to points of safety where other means of communication, such as telephones, were sure to be working regularly. Such points were nearly always comparatively near the front; that is to say from eight to sixty miles away, and such distances for birds capable of covering four or five hundred miles, were little more than practice spins. Barring serious accidents they could reach their lofts as surely and as regularly as a good athlete might walk down to the corner to catch a car or to collect his mail. Consequently, the pigeon messenger service was reduced to a practical certainty. In the battle of the Somme, the French used over 5,000 pigeons, and only two per cent of the birds released with messages failed to return, this in spite of the worst a resourceful enemy could do



A ROYAL AIR-FORCE PIGEON, WITH MESSAGE-CARRIER. THE LATTER IS RATHER SMALLER THAN THOSE USED IN OTHER BRANCHES OF THE SERVICE AND IS FASTENED TO THE LEG BY ONE INSTEAD OF TWO ALUMINUM BANDS.

to prevent them. And even this loss does not necessarily imply that the information carried by these pigeons was not received. In the case of an important message, it was usual to send a copy by another pigeon. Sometimes two or more copies were sent by as many birds; when pigeons were scarce, the copy might be sent by the bird carrying the next message.

Messages were attached to the birds in various ways. The commonest, and perhaps the best, was by means of a pair of small aluminum tubes, which fitted snugly, one into the other, like sections of a telescope, forming a capsule, or cylinder, closed at both ends. The tube having the slightly larger diameter was fastened by metal bands, mouth upwards, to the leg of the pigeon; the smaller one containing the message was then pushed into the larger, mouth downward.

The Italians sometimes used a very small chamois leather envelope, which after receiving the message, was buttoned around the leg of the bird. In emergencies the message was simply wrapped around the pigeon's leg, and secured by two ordinary rubber bands. Where unusually long messages, sketches or maps were sent, they were put in a light cloth knapsack made to fit the rounded breast of the bird, and held in position by elastic bands which circled the body, crossing on the back. Sometimes as much as fifteen feet of moving picture film negative was carried by a pigeon in this way.

The "homes" to which the birds returned were either more or less permanent structures at important centers well in the rear, or mobile pigeon lofts which followed the movements of the fighting forces to supply them with the birds they needed, and to receive the messages brought back from points at the front. When a mobile loft was moved to a new position, the birds were given

a few day's preliminary training before being entrusted with important messages.

That pigeons could be trained to home to these mobile lofts is one of the surprising and interesting evidences of their adaptibility which their war training brought out. For distances up to fifty or sixty miles they were practically infallible as is shown by the fact that about 95 per cent of all the messages entrusted to the British pigeons during the war were safely delivered. Nothing like the astonishing distances which they have been



A FRENCH MOBILE PIGEON LOFT.

proved capable of doing was ever required of them on war duty.

If a pigeon was released in good condition, failure to return to the loft was usually due to death from poison gas or the enemy fire. But so long as the wings were not badly injured, it was a desperate wound indeed that prevented a homing pigeon from delivering his message. The loss of a leg or an eye was quite a common occurrence, and such an injury in itself was not enough to prevent the bird from finishing the task it had been set to do. In our own American army there were several pigeons who distinguished themselves by delivering messages in spite of terrible wounds. Probably the best known of them all is Cher Ami, the black checker cock which delivered twelve important messages on the Verdun front, and at last lost a leg in the Argonne. His story has been often told but it can bear repeating often. The little courier was hit by a bullet just as he was leaving Grand Pré. The boys in the trenches saw him stagger and shouted "He's done for!" and watched to see where he would fall—but he didn't. For a few seconds he fluttered helplessly about, then gathering himself together he went on through the hail of shrapnel and machine gun fire, and was out of sight.

There is no one who can tell of what Cher Ami passed through on that wonderful, that terrible, flight over the hills to his home. But suddenly above his loft at Ramont he appears again, he drops from the sky like a rocket. Striking the loft, breast first, he staggers, sways from side to side, and then, hopping on one bloody leg, he makes for the entrance landing-board, where he is received by his trainer. The tube bearing the message was hanging by the ligaments of the leg that had been shot through; there was a hole through the breast bone made

by the same bullet. But, for all that, Cher Ami had covered his twenty-five miles in as many minutes.

The American Pigeon Service as a whole gave an excellent account of itself, often under the most trying circumstances, during the months our army was in the field. At first our troops were occupying sectors under French High Command, and were furnished with birds from French lofts, as also indeed in many cases later on, when the American lofts that had been established were moved suddenly into new sectors. It was in August, 1917, that the first detachment for our own pigeon service came over—two officers and twelve soldiers, selected from among the most prominent of American racing



THE MOST FAMOUS OF AMERICAN WAR PIGEONS—"CHER AMI," WHO LOST A LEG IN THE SERVICE.

pigeon fanciers, bringing with them 2,350 of our best racing pigeons. This detachment was followed by others, and others, until at the date of the Armistice, the 1st Army Pigeon Service was credited with 9 officers, 324 soldiers, 6,000 pigeons and 50 mobile lofts. Among American aviators little use was made of the pigeons and this for various reasons, perhaps the most pertinent being that while officers were busy with their machines in the air they could not write a message, attach it to the messenger, and liberate it, without danger to themselves. Another reason given was, that with their wireless, they could reach any desired point without in any way lessening the control of their machine. Many of the officers, however, took a great interest in the birds, and some interesting experiments were carried out at one of the American aviator schools where birds were released at very high altitudes, some homing from as high as 6,000 feet. Every bird sent out in fact, returned excepting one, released at 8,000 feet, and this failure was believed to be due to some accident.

But the tanks used the pigeons continuously. These iron-clads were unable, excepting at rare intervals while advancing, to make use of any means of communication other than the birds, and so these became indispensable to them. A famous "tanker" was the handsome Lord Adelaide. Twice he made his way safely through a hail of bullets! On his third and last journey he was struck. But Lord Adelaide came of proud stock. Weak, covered with blood, he went on, and delivered his message. A big blue bird, known as President Wilson, also did remarkable work for the tanks. Later in the Argonne, with one leg shot away, he flew the distance of twelve and one-half miles in twenty-one minutes



TANKS KEPT IN TOUCH WITH THE INFANTRY BY CARRIER PIGEONS, WHO WERE RELEASED AND CARRIED BACK.

through heavy rain and fog. Today he may be seen in the Hall of Honor of the American Pigeon Service.

During the Autumn of 1918, when the American troops were in action, there was much rain and fog—the worst possible weather for pigeon messengers. Often, too, the birds had to be kept in the trenches without proper shelter and without proper intervals for rest.

At St. Mihiel 576 birds were used. On the Meuse-Argonne 403 messages, many of them containing information of the greatest importance, were delivered. When we realize that the greater part of these messages were entrusted to their bearers only after all other means of communication had failed, we may gain some idea of their value. Those were momentous months for the world, and there must have been many times when the lives of men, and great decisions, hung upon the wings of a racing homer.

Many pigeons made gallant records for valor and speed, and gave of their uttermost. Take the Poilu. A messenger was needed to carry important information concerning the location of an enemy ammunition train. Which bird should be chosen for the work? Le Poilu—he had already been through St. Mihiel with the tanks and proved his mettle. "He'll do all that is asked of him!" his trainer said proudly, "and," the story goes on, "Le Poilu did that and more. With the flesh and feathers on his neck hanging in ribbons, and reeling like a drunken man, Le Poilu fulfilled his mission."

Kaja Boy, known to his trainer as "the little streak," though frightfully wounded, and in a state of complete exhaustion, also performed the work given him to do. Another American bird, the "Mocker," arrived with one eye destroyed, possibly by shrapnel. And there was Lady Jane, who, badly gassed, still was able to make her loft.

These birds, terribly injured as they were, all recovered but there were numbers of instances in which pigeons showed the limit of endurance by using up the very last ounce of their strength to complete their distance, dying as they delivered their message. Perhaps there is no finer example of the valor of these birds and

their determination to reach their homes than is shown by the one who is known on the British records as No. 2709. This pigeon was with the British troops during the action which was fought in the region of Menin Road on the third of October, 1917. She was dispatched with a message from the front line to Divisional Headquarters, nine miles away, early in the afternoon. How far on her way she had gone when she was hit by a bullet which broke one of her legs and drove the message carrier into her body, we do not know. Hours passed. Night came on and the rain; and when No. 2709 did not return to her loft she was given up for lost. But she was not lost. She was not dead—it was not time to die yet. Somewhere she had lain out in the wet all night, and in the gray of the morning, with plumage wet and bloody, she staggered into the loft, and died before the officer on duty could read the message she had brought. No. 2709 is known as the V.C. pigeon now, and her little mounted figure is to be seen in London in the United Service Museum, not far from the cenotaph of the Unknown Soldier.

The pigeons, by reason of their beauty, their abandon, and often brilliant and dramatic performances, made a strong appeal to the French imagination. The French used in all about thirty thousand, and the birds that performed distinguished service, or showed unusual gallantry in the line of duty, were rewarded the Croix de Guerre or the Croix Militaire. Diplomas, with the citations were issued and kept at the headquarters of the French Pigeon Service, and because pigeons cannot wear medals on their breasts, special bands with the colors of the decorations were made for their legs.

When Commandant Raynal was surrounded at Vaux there were times when pigeons were his only means of



RÉPUBLIQUE FRANÇAISE

GRAND QUARTIER GÉNÉRAL DES ARMÉES DU NORD & DU NORD-EST

ÉTAT-MAJOR

SERVICE DES PIGEONS - VOYAGEURS

Diplôme de Bague de Guerre

Décoré au Pigeon Voyageur N^o 427.14
du colombier 370.1 à Serdin Central

CITATION:

*Dans la journée du 3 juin 1916, malgré
une brume intense, a porté le 3^e message du
Commandant Raynal annonçant
l'encerclement du fort de Joux, et l'héroïque
résistance de la garnison.*

Le Lieutenant, Chef
du Service des Pigeons Voyageurs

Le Général, Chef d'Etat-Major Général

S. G. Duffour.

RAYNAL'S LAST PIGEON AND ITS DIPLOMA.

communication with Verdun. His last bird but one flew in through a terrible enemy fire and received the Croix de Guerre. His last pigeon, badly mangled, dropped dead as he delivered his message. He was rewarded the Légion d'Honneur, and a diploma, framed in the colors of the decoration, and bearing a brief and dignified citation was hung at headquarters in Chantilly.

Pigeons were also used to effect communication between aviators, or balloonists, and the ground. Such men often made observations which they wished to report without descending, and pigeons could be released at almost any height, and from machines going at even 100 miles an hour, if the aviators were familiar with the proper methods of handling the birds. As a matter of fact, it was usually possible to slow down the machine for two or three seconds which permitted the little messenger to escape in safety. A pigeon released in this way did not continue to fly at a great altitude, but would make a rapid "stepping" descent until it reached its usual flying height, 300 to 500 feet, when it would circle, and then take a direct line for its loft.

It is a well-known fact that comparatively few airmen were expert wireless operators, and during a prolonged reconnaissance it was sometimes found wise to verify important messages by sending copies of them by pigeon post.

During seven months of the year 1916 one military loft in France received twenty-four pigeon messages from airplanes which had been captured, or which had met with disaster of some kind. These messages contained the last observations or told the fate of between forty and fifty airmen.

Spies often used pigeons because they afforded an

almost certain means of communication with a minimum of risk. Birds could be carried in the pocket, and could be hidden or destroyed if there were danger of detection. Pigeons carried by spies were sometimes provided with cloth hoods which covered the head, with the exception of the bill, which protruded through an opening provided for it. Thus blinded, a bird would not attempt to fly, but would remain standing or lying wherever it was placed. A spy could thus drop a pigeon anywhere at the first appearance of danger. He might even be searched and as soon as his searcher had disappeared, he could pick up his pigeon from the place where he had dropped it, and go on his way rejoicing. Italian spies on enemy ground were furnished with pigeons at night by airplane. The airman would know about where a spy would be stationed, and would fly above it in the dark, watching for light signals which the spy would display close to the ground. On seeing them he would shut off his motor, glide silently above the spot, and by means of a parachute, drop a basket of pigeons which would float gently down to the man who was expecting them.

In the same way, but without the use of signals, pigeons were dropped into Italian territory occupied by the Austrians, and into Belgian and French territory occupied by the Germans, in the hope that they would be found by loyal inhabitants who would send information concerning the enemy. Much valuable news was sent, and the Austrians and Germans attached such consequence to the danger arising from this practice that they posted notices throughout the occupied territory, ordering the inhabitants to report immediately to the nearest military authorities the finding of pigeon-baskets, which were not to be opened under pain of severe punishment. A rough translation of the notice posted by the

Austrians printed in both Italian and German, reads as follows:—

Spilimbergo—Imperial and Royal
District Command
Notice
Enemy Spy System

The enemy is in the habit of dropping from airplanes little baskets of homing pigeons, by means of which they desire to obtain information concerning this side of the line.

The pigeons are placed in little baskets bound with wire netting and marked "Please open."

Any inhabitant who finds one of these baskets, must, without tampering with it, report to the nearest military authorities. All persons are forbidden to open baskets or any letters attached to them or to remove them from the place where they are found.

Inhabitants disobeying these orders are liable to the severest punishment. If they try to escape they run the risk of being shot instantly.

Any town in which one of these pigeons is secreted is liable to a fine of from 10,000 to 100,000 liras.

Spilimbergo

7th of Sept., 1918.

The Italians used a very large force of homing pigeons, and, as elsewhere, this messenger service assumed greater and greater proportions as the war progressed. Before the great retreat of 1917 there were 30,000 birds; after that the number was increased to 50,000 and later 2,000 additional pigeons were requisitioned from civilians. Perhaps the greatest single service they rendered the Italian army was on the Piave in June, 1918, when 1,500 Italians were surrounded and in grave danger of capture by the Austrians. Two pigeons were liberated at night with a message for help, and, as a result, reinforcements were sent up, the Italians

were rescued, and 3,500 Austrians were taken prisoners. This is one of the few occasions on which pigeons were entrusted with important messages at night. Experiments in the night flying of pigeons were made by the French, British, Belgians, Italians, and possibly by other allies. Fairly good results were obtained, and had the war continued it is possible that birds might have been trained to be of practical service in the dark. As it was, both French and British trainers succeeded in getting a fair percentage of birds to home from a distance of about six miles. They were first liberated in the dusk; then a little later each night, until at length there was practically no light. By keeping the loft dimly lighted in the daytime, the pigeon's eyes were rendered extremely sensitive, and as the birds flew back through the darkness, a red light near the entrance of their home was sufficient to guide them.

As might be expected, the Belgians had a splendid pigeon service, with head-quarters in Antwerp. At the time the war broke out Antwerp possessed probably the finest military pigeon loft in the world with a force of two thousand five hundred pigeons. They were the especial pride of Commandant G. Denuit, Chief of the Belgian Pigeon Service. On the 8th of October, 1914, the German hordes were before Antwerp and had decided to take the city that day. It was known that one of the first things they would do would be to seize that wonderful messenger service, which of course would be as useful to them as to the Belgians. Denuit himself told me, how, that morning, with aching heart but with firm purpose, he took a torch and fired the great *colombier*, burning alive twenty-five hundred of the finest pigeons in all the world, that they might not be forced



BELGIAN CARRIER PIGEONS INTERNED BY THE GERMANS IN BRUSSELS MARKET.

into the service of the enemy. He was only just in time, for the Germans burst into the town at noon.

The Royal Air Force was the first arm of the British service to make use of pigeons as messengers. It remains to give some account of the way in which the birds repaid the confidence which had been placed in them. A book might be written on the glorious work rendered by homing pigeons on duty with the sea-planes alone, and that book would be full of thrilling chapters. There is nothing more dramatic in the annals of domestic animals than the stories of the rescue of men who must have perished had not their calmly written, but desperately urgent, appeals for help been delivered, safely and on time.

Here are a few records, taken at random from a R. A. F. station:—

“On 14-10-18, Short Seaplane, N9073, whilst on patrol was forced to land fifteen miles east of Arbroath. Two pigeons were despatched giving the position of the wreck and requesting immediate help, as the machine had capsized and was rapidly breaking up in the rough sea. Aircraft were despatched to the position given, and, having located the wreck, directed a destroyer to it, and the crew were consequently rescued. The pigeon message was the first intimation we received which gave us the position of the seaplane.”

“On July 22nd a machine was forced to land at sea owing to thick fog. A bird released at 10 a.m. 10 miles east of Flamborough reached Hornsea loft about 10:30 a.m. with a ten knot wind against it. Although the pilot had completely lost his bearings owing to the fog, the pigeon made straight off for land without hesitation.”

“A machine was forced to land five miles east of Flamborough, and two pigeons reached the loft in an hour. They flew through a heavy thunderstorm and high wind, which was against them.”

Just the barest facts, but what stories they suggest of duty, and endurance and daring, of disaster, failing strength, despair, and sudden hope. In reading them we feel the romance, the thrill, the dread, of the men who mount in the air and descend to the sea in their frail winged ships. Here are tales of ocean and sky, of men and birds, unlike any the world has ever heard before!

Sometimes, in looking through the records, we notice the number of the same bird appearing again and again in notable rescues. For example there is No. 3698 known at his station as “Pilot’s Luck.” One day we find Pilot’s

Luck bringing a message from a seaplane down on the water with engine trouble, and attacked by three enemy machines. Pilot's Luck had had to fly 200 miles to carry that message and had done the distance in five hours!

On another day he is one of two birds—the other known as 296—released from a sinking seaplane, and bringing word that results in the rescue of the crew. And again we find him and 296 the messengers of a seaplane which had been forced to alight on the waves fifty miles from its base. This time it is his comrade which is despatched with the first message, giving the position of the badly damaged boat. Then Pilot's Luck is sent, and his news is still more grave—the machine is sinking. One hour, two hours go by. When the rescuers arrive at the place they find the crew clinging to the upturned float.

Indeed the birds were no idlers. One, of which we read, made three flights in twenty-four consecutive hours—twenty-five miles from one direction, forty-two from another, twenty from yet another point of the compass. One Air station sent out seventy-two birds on a single day, and two hundred and thirty-four in a week. These, however, are the records of times of unusual stress. The normal speed at which the birds flew was about forty-five miles an hour but there were times when this was far exceeded. There was a blue hen which made one of the great flights of the war. She was on a Short machine, which was forced by engine trouble to alight whilst on patrol duty off the Scottish coast. It was no day or hour to come down to the water—a bleak November afternoon, a rough sea, night coming on, and twenty-two miles from an air station. The only hope was the pigeon.

The blue hen was taken from her basket, her message adjusted, she was tossed into the air and was gone. It must have seemed a pretty hopeless situation to the two men on the wrecked boat in that darkness, but help came, and the men heard that their bird had flown the twenty-two miles in as many minutes.

Amazing speed, but beaten by another British pigeon which carried a message thirty-eight miles in twenty minutes, or at the rate of 114 miles an hour. Of course such flights as this are very unusual and can be accomplished only when the birds are flying with the wind,—“have the wind under their tails,” as the pigeon men say.

Sometimes it would take several birds to effect a rescue. Helpless in the water, the pilot and the observer of a seaplane sent the following message. “We can hear firing but cannot see land or ships. Can you send around coast twenty-one miles or so? We really have no knowledge of our position at all. Very urgent. Both feeling very, very faint. Perhaps we are off the Southern Kentish coast. Compass no use.”

The bird that carried this word failed to home, owing to the fog but settled on a trawler in an exhausted condition. The message was taken off and sent out again by two other birds, which, unchecked by the haze, homed safely, and assistance was sent. Owing to no position being given great difficulty was experienced in finding the seaplane. But eventually the men were saved after being in the water twenty-four hours.

There are hundreds of men now living who owe their lives to pigeons in some such way as this. Here is an incident which occurred not long before the Armistice was signed. An airplane, badly crippled, crashed into the North Sea far from land. The two men upon it would quickly have drowned, had not a seaplane come

down to their assistance. Unfortunately the seaplane was injured and could not rise again from the water. There were now six men on board. The wireless, as often happens in such cases, was out of commission, and hope centered in the homing pigeons, of which there were four. Next morning, in spite of a heavy off-shore wind, a pigeon was released with a message giving the latitude and longitude of the seaplane, and asking for help. No help came and the next morning a second bird was sent with the same message. Again nothing happened, and the following morning a third pigeon was liberated. All this time the men had nothing to eat, and their only water was what was condensed in the radiators, which was dealt out at the rate of about one wine glassful a day for each man. As conditions were desperate, it was decided not to wait for the fourth morning, but to liberate the fourth bird on the third afternoon which was done.

It is believed that the first three birds never reached the coast but that, weak from confinement and lack of food, they were blown back into the North Sea. But the fourth bird did reach the coast, and, although it did not get to its loft, did reach a naval station where it dropped dead from exhaustion. It was picked up, the message read, and a destroyer sent straight out to rescue the six men, who thus owed their lives to the great courage and splendid flying ability of a homing pigeon.

We can imagine how these men felt, when as they were nursed back to strength they learned that the bird which had saved them had died in making the supreme effort to reach his goal. They took the little body, had it carefully mounted, and today there is to be seen in the headquarters of that aero squadron a neat glass case, containing a beautiful pigeon, and beneath it the inscription, "A Very Gallant Gentleman."

The stories are not all of success and rescue—sometimes they tell of tragedy and disaster too swift for any help.

One day a racing pigeon seemed to drop from the sky on to a Light Ship off the Kentish coast. It was a terribly wounded bird, one eye was badly damaged, and the flight feathers of the right wing broken. He bore a message from a seaplane, just one word "Attacked!" No other word ever came from that seaplane, one of two which somewhere had met the enemy.

Or this message comes—too late:

"Still right side up, but expecting to go over every minute. If don't have assistance soon, guess it's all up.



LIFE-SAVING PIGEONS ATTACHED TO THE NAVY. AN OFFICER IN A SUBMARINE FIXING A MESSAGE TO THE LEG OF A PIGEON.

Cheery Oh!, Have been drifting south-east in very heavy sea". . . .

There were many occasions when the seaplane encountered enemies other than the waves and the wind, when the silence of the ocean and the air was broken by the sound of guns and birds brought word of battle, of "tanks shot away," of someone "killed instantly," of a plane "sinking rapidly." "Machine turning over to port," begins the last of a series of messages describing such an encounter. "Have jettisoned everything," it continues, "Am on wing tip. Sea calm. Machine has seemingly steadied. Nothing in sight. I think machine will float a long time. Land bus just made one circuit, but I don't think he saw me. My love to mother. Tell her I am not worrying. If machine sinks. I will swim to buoy close to me. Two ships have just passed. Rogers was killed instantly—wound in the head."

The records of the air station gave us the rest of that story, and from them we learn that the officer who sent that message was captured by the enemy, and that another seaplane, which had been in the same engagement, was taken in tow by an English patrol and safely reached the base. The birds had done their work, although the word they brought had not been of victory.

These are only a few of the many examples which might be given of the way in which the pigeons served the seaplane force. Let me give just one more, a story which I heard at the headquarters of the Air Force Pigeon Service in London, and which is finely typical of the cooperation which existed between the men of the air force and their flying messengers.

It was late afternoon. One of England's largest seaplanes had just completed a long anti-submarine patrol above the North Sea, and her tired pilot gladly

swung her round and headed for his base. Then something went wrong. The huge craft plunged downward, righted itself, plunged again, and dived sidewise into the water. There was an ominous cracking and ripping, some quick, dangerous work by the crew, and four men stood upon a wrecked and wave-swept seaplane. How long she would float, heavily laden as she was with motor and armament, none could tell, but what every man did know was that help must come quickly from somewhere, or it need not come at all.

Then somebody shouted, "the pigeons!" A dripping basket was found and opened, but alas, two of the three birds were dead, and the survivor so wet and chilled that its recovery was doubtful. But it seemed the only chance, and an officer wrapped it in a woolen muffler which by some miracle was dry, and placed the bundle inside his shirt. In half an hour the pigeon had somewhat revived, and as the daylight was already failing, it was decided to wait no longer. A brief message was written, rolled up and pushed into a small aluminum cylinder, and the cylinder attached to the right leg of the bird.

It was an anxious moment when the pilot climbed to a high point on the wreck and tossed the little messenger into the air. It fell, and every heart sank with it. Then, catching itself just above the waves, it lifted itself a little. For several seconds it barely held its own, then seeming to gain strength by its own effort, it rose slowly, squared away, and disappeared in the battleship grey.

Somewhere on the northeast coast of England night was approaching under a drizzly mist, and a raw wind whipped land and sea around the lonely group of buildings known as "Royal Air Force Pigeon Station No. . . ." It was tea time, and a welcome hour to the little group of bronzed "non-coms" and men in British uniform who

were chatting and laughing around the small fire in the mess room. One of them was telling a story of a Portuguese commander who had mistaken a gift of two baskets of British homing pigeons for an addition to the food supply, and who in his letter of thanks to the British commander had naïvely remarked that he and his staff had "enjoyed them very much indeed." But the laugh which greeted this story was cut in two by a sound which caused every man in the room to pause and listen—it was the sharp insistent call of the electric bell that rings automatically when a homing pigeon enters the "trap." A non-commissioned officer set down his cup of tea untasted, arose and opened the door leading to the pigeon loft. From a corner where it had huddled, he lifted a light blue pigeon, very wet and bedraggled, skillfully removed a small aluminum cylinder from its right leg, slipped the bird into a pigeon basket, and carried it into the mess room.

"'Ere!" he called, "set this blarsted pigeon on the 'arth till it dries art,' and before the order could be obeyed, he had drawn from the little cylinder a roll of tissue paper, smoothed it out flat and was reading aloud:—

"Machine wrecked and breaking up 15 miles S.E. of Rocky Point. Send boat."

Two men had already reached for their oilskins and were passing out of the door into the fog. Another minute and those sipping their tea heard the staccato "put-put-put" of a motor boat dying away in the general direction of Rocky Point.

Darkness had fallen on the North Sea, and four men, wet and chilled, still clung to a wrecked seaplane. They had little hope that their message had been delivered, or if it had been, that help would come in time to save

them. The wind had risen and now and then the waves tore some portion of the wreck, which sank lower and lower in the water. At last there came a sound—the sweetest music they had ever heard—the siren of a motor boat. Again and again it sounded, each time nearer; then the heartened men arose and sent up a wild shout in answer, and a hissing bow shot towards them from the darkness.

On top of a little basket by the fire in the mess room, a modest blue pigeon sat quietly preening its damp feathers. And the next morning the British papers reported,

“Seaplane N 64 lost in the North Sea, fifteen miles southeast of Rocky Point. *All the crew were saved.*”

ANIMALS AND CHEMICAL WARFARE

WHEN chemical warfare was sprung as a devastating surprise by the Germans, it immediately became a subject of intensive study by the French veterinarians, and the result of their work was of profound value to the Allies.

The first facts established were that all the products of chemical warfare were injurious to horses and other saddle, pack and draught animals, though in varying degrees; and that, in general, animals were less affected than were men.

Tear gas, in the case of horses, was regarded as negligible. The case of suffocants was different. Chlorine, phosgene, bromacetone, all caused lesions of the respiratory apparatus, with bronchitis, pulmonary œdema and congestion, and secondary complications. Acute pulmonary œdema often resulted in death. Animals only slightly affected sometimes developed serious œdema within twenty-four hours. Work and exertion increased the probability of such latent affections; and since work and exertion were unavoidable, the suffering animals often toiled until they dropped. Such gases as these necessitated the best protection that could be devised.

Mustard gas produced a set of injuries entirely different, such as lesions of the skin and mucous membrane. Animals driven through territory bombarded by gas developed burns on the hoofs, on sweaty portions of their bodies, and wherever the harness rubbed. The burns were generally superficial, but they were liable to

become seriously complicated by secondary infections, which, taking the form of broncho-pneumonia, were a common cause of death. Mustard gas evaporated slowly and its evil effects persisted long after a bombardment. Even after two days animals were affected by eating contaminated herbage.

Protection against mustard gas was gained in some degree by careful disinfection after a bombardment of the ground, and of all contaminated harness and other material. Exposed horses were taken in hand as soon as possible and sponged with soap and hot water.

Fortunately, horses are far less sensitive than men to the effects of toxic gases. This is because of the length of their upper respiratory tracts, where contaminated air comes in contact with a large total area of moist surface. Animal losses from exposure to waves of gaseous chlorine, with or without other toxic products, were inconsiderable. A bombardment of average intensity generally reaped but a small harvest among animals, partly because they were not very susceptible to it and partly because they were somewhat sheltered by their distance behind the front. However, it happened many times that intensive bombardment with special shells put large numbers of animals out of action.

The death of animals, although guarded against for the animals' sake, was less serious than the handicap to the fighting line through disablement of animals serving it. Often, such disablement brought German victory measurably closer. Take the gas attack at Bois Maretz: Three horse-drawn wagons loaded with gas masks for front line troops were being hurried forward in response to urgent signals; they had to pass through a zone of toxic bombardment, and every horse died before the destination was reached. In a similar attack at Craonne

in April, 1917, a battery of trench mortars lost twelve out of its thirteen horses.

Casualties like these with their far-reaching results of disaster, established the necessity of protective appliances for the animals that would permit them to go on with their work. Collective measures for group protection were not difficult; ground could be disinfected, bivouacs and stables could be located at points sheltered from gas. Stables could be well ventilated, lest the ammonia given off by the animal discharges should combine with chlorine to produce chloramine, a dangerously toxic product. Stable exits could be closed by cloths water-proofed with boiled linseed oil; spraying could always be resorted to. Open fires to reduce penetration of a toxic atmosphere, however, were found to be untrustworthy.

The urgent employment of animals was the bringing up of supplies, which was prevented once the animals' organs of respiration were affected by toxic gases. The protection of the respiratory system was of primary importance, and numberless devices were experimented with, some with a measure of success, though most of them had serious drawbacks. Horses at rest could be protected easily; horses at work presented a hard problem. Almost any mask was liable to make breathing difficult. Hard-worked horses, becoming winded, could not breathe in them at all. They became excited, and if the mask was not removed asphyxiation was likely to follow.

As the horse breathes only through his nostrils it was hoped that protection of these would be enough, the mouth being left free for the normal use of bits. But appliances on this principle did not give satisfaction.

A makeshift appliance in vogue at one period consisted of nostril plugs made of gauze salvaged from human

masks. The plugs were forced up the nostrils and held in place by three safety pins passed through the edges of the nostrils. The inhumanity of this device prevented its becoming popular, and the difficulty of proper adjustment in haste under fire aided in ending its use. Even makeshift masks were to be preferred.

The best types of mask finally evolved were designed to be worn over the bridle, which aided in preventing pressure of the mask against the nostrils. Horses could breathe more easily in these than any other. Most horses submitted quickly to the mask and made the best of it, their equine intelligence apparently grasping the fact that man, whom they served, was doing his best to serve them.

In the training camps on this side of the water, where toxic gas was no more than a disagreeable theory, some American commanders decided it would be well to accustom animals to the sight of men in masks. The order went forth that men at work around the stables and lines should wear this additional equipment. The first time it was tried out mules were the subject of the experiment. The entire line was standing docilely at rest, but when a soldier in a mask started to lead out one of them alarm rippled down the line. With a common impulse the whole line broke away, and men without masks spent the next two days in rounding them up. The further application of the theory was discontinued.

But there was no reason why the men themselves should not realize what marching in masks meant. Another commander—this time in Texas—decided to send out night patrols in gas masks. The patrol, moving quietly, had not gone far when it came in contact with a parcel of negroes engaged in the ancient pastime of

shooting craps. The masked squad were almost in the midst of the crapshooters before they were seen.

There were wild cries and a rolling of white eyeballs. "White Caps!" yelled one negro. Then the whole bunch dissolved from view, spreading the news through Texas, on foot. And that was the last night patrol sent out in gas masks.

The claims of various small creatures to distinguished service in connection with the detection of gas have been pressed by well-wishers. I have before me, for instance, a lengthy extract from a prominent weekly. It is entitled "Pussy's Bit in the War," and contains the information that pussy, having proved herself a competent gas-detector, had been sent to the front to help win the war. Not one pussy, mark you, but half a million pussies! Now, the tale, to be credited, should have contained particulars of the half million gas-masks, cat size. The same writer's claim that cats proved valuable as destroyers of rats also lacks foundation. The cold fact is that cats rarely tackle a full-grown rat, particularly where rodents are abundant, which of course was the case in and around the trenches. No one, however, can dispute pussy's claim as a winning and beautiful mascot.

Goldfish are said to have aided the British on one occasion. An English officer had orders to wash some hundreds of gas-masks in a river, and as the masks had been subjected to the deadly fumes of a gas barrage, the French peasants complained that the fish in the stream were being poisoned. The officer took a cage of goldfish, and hung it in the river just below the place where the masks were being washed. As the goldfish continued to thrive, the objection of the peasants was overcome.

Rats are said to have indicated that smoke *lifts* poison

gas. During a gas attack some straw was accidentally set fire to. The rats congregated around it for air, and from this incident the French are said to have derived the idea of placing on the parapets boxes containing the chemical materials for producing smoke to lift the gas during an attack. But if it is true that the rats did indeed do one useful thing, they proved themselves in war, as in peace, destroyers of food and an unmitigated nuisance. The scientific men sent out to determine how to rid the American trenches of their baleful presence, reached the sensible conclusion that with French rats to the right of them, and Belgian rats to the left of them, the task was hopeless. They therefore concentrated their efforts on the protecting of supplies from the rodents, with gratifying results. If any animal deserves credit for killing rats, it is the dog. Many rats in trash piles were dislodged by soldiers, to be killed by the dogs as they ran out.

When war broke out and poison gas came into general use, the Chemical Warfare Service were at their wits' end to find some creature that could be put into practical use as a gas-detector. The cow they tried—to no purpose. Cats, rats, and mice proved equally impracticable. So did guinea pigs and dogs. Flies and fleas refused to help. In this extremity the Chemical Warfare Service came with their problem to that great institution of America, the Smithsonian.

It then developed that for eight years, from 1896 to 1904, Dr. Paul Bartsch, of the Smithsonian Institution, had in the interest of science devoted much of his time to the study of mollusks. Slugs had shared his house, a basement room being entirely given up to them. It is true they lived under restrictions; but where there's a will there's a way, and one day the slugs gained their

liberty. Most curious of all, they traveled a distance of more than seventy feet to a boiled potato.

The ordinary person would have attached no significance to the incident. Of course the ordinary person would not have harbored slugs in his respectable domicile. But the owner of the slugs (and the boiled potato), was no ordinary person. He treasured the incident in his mind as an indication of the extraordinary olfactory powers of slugs, and after ten or fifteen years he was able to turn it to good use. When the Chemical Warfare Service men appeared, with their tale of baffled endeavor, Dr. Bartsch quietly observed: "Let's try the slug."

Whether this patient man of science (all men of science are patient) received his just share of glory, I do not know. "Virtue is its own reward," has a special application in the case of men of science. This is not the place to write of the man. Unlike Virgil, I do not sing of arms and men; I sing of the humble *limax maximus*, for that is the name of the common garden slug, destroyer of pansies and a thousand other beautiful flowers. They say that every dog has his day; this was the slug's day. He came through all his trials with colors flying. It was demonstrated that he could show the presence of mustard gas in a solution of one part in twelve million parts of air. He could do even more, for upon closer observation it was found that by means of the slug's reaction it was possible to determine the actual proportion of gas present in the air. Since one part of mustard gas in four million parts of air marked the danger point to man, there was a tremendous leeway which gave ample opportunity to sound a signal for putting on masks.

All the creatures experimented with had reacted to

the presence of gas in the air, but the gassing had usually resulted in pneumonia. Not so in the case of the slug, which closed up its breathing aperture, thus saving the delicate lung membrane. For when mustard gas comes into contact with moisture, it generates hydro-chloric acid, which burns out the lining of the breathing organs. The despised garden slug, however, could endure one gassing after another. He was not killed, nor was his efficiency lessened so far as response to mustard gas was concerned.

The garden slug is not indigenous to America, but anyone familiar with European gardens knows how the creature multiplies, and what a serious problem it is to keep down the numbers. It would have been an easy matter to obtain all the slugs requisite for the trenches in France, and their reactions were so simple that with a few minutes explanation a child could have understood all that was necessary. And once taught they would have become most willing allies: neither their rations or their quarters would have troubled them, or made them grumble. Given any old box with a piece of wet sponge they would have been perfectly happy.

In June 1918 the allied armies were informed by cable of the gratifying new uses of the gentle slug—uses which, alas, do not appear to have been appreciated, for on making inquiry at the War Department in Washington, the present writer was informed that no record of their use by any of the allied armies in France could be found. Let us hope that no future occasion for such use shall ever be found.

AMERICAN ARMY VETERINARY SERVICE

THE veterinary service in the United States Army followed a course of slow development through the long years from 1792, when Congress authorized the first mounted troops, up to the Great War. Slow indeed; for when that war broke for us in April, 1917, the entire personnel of the service numbered but 62. And the service was based on a principle, admittedly faulty, which it was necessary to discard before anything like an adequate Veterinary Corps could be organized.

Those persons, of highly ethical intelligence, who found satisfaction in the national indifference to war's threat must have gazed with especial fondness upon our veterinary service, in which unpreparedness was exemplified to perfection.

Available records do not show any veterinary surgeon as being on duty with the military forces of the United States during the Revolutionary War, nor from that time up to 1835; a farming population was more self-reliant in caring for animals, than the urban, automobiling population of today. We came through the Civil War with but the faintest suspicion of veterinary service; in 1863 there were but six veterinarians in the Army. The wastage of horse life by disease in that struggle was enormous, and President Lincoln, humane and patriotic, did his best to remedy it. Realizing the Army's handicap through sick and injured horses, he offered commissions as lieutenants to several of the best veterinarians of the

day; but they refused to consider any rank below that of captain.

The changing character of the population slowly forced a more professional care of Army animals, but this care was always administered by units and with responsibility to separate commanders. The veterinary service had no organization; in itself it never had a vestige of authority. A few schools of instruction were established, and the personnel of the service gradually took on a character more worthy of commissioned rank, but the need of an independent veterinary organization seemed never to penetrate the minds of Army leaders. In fact, veterinarians were held to be mere civil employees and no integral part of the Army organization. They were held responsible to commanding officers of departments and divisions. They had no commanding officer of their own. The development of systematic service was impossible.

Prior to the Spanish-American War very little attention was devoted to adequate inspection of meats and dairy products issued to the military forces. There was appalling lack of information in the military organization concerning this branch of supplies. This was an important contributory factor in the meat scandal of that time. One result was the evolution of a system of meat inspection which included the employment of a few qualified veterinarians at important packing centers to supervise the preparation of meats, and this developed into a system under which, during the Great War, billions of pounds of meat products were inspected, and the Army's welfare in that direction was efficiently guarded. But at Army posts, supplied with fresh beef by local dealers, it long rested in the judgment of the commanding officer whether the veterinarian should inspect the cattle before

slaughtering and the beef when delivered at the post. It was a hit-or-miss arrangement that could not produce satisfactory results.

The history of the present Veterinary Corps dates from the approval of the National Defense Act, June 3, 1916. Under this, veterinarians with commissioned rank were authorized, to be assigned to duty as inspectors of horses and mules and of meats, and were to constitute the Veterinary Corps, which was specified as a part of the Medical Department. This legislation marked the culmination of the efforts extending over a period of thirty-two years, of leading members of the veterinary profession in this country to obtain adequate recognition through the establishment of a commissioned status for veterinarians in the Army. Indeed, a few civilian veterinarians had realized the importance of such a step, and their indifference and inability to agree on united action was long reflected in the apathy of Congress.

Up to this time the veterinarians had been carried as members of the Quartermaster Corps, which had supplied the drugs and instruments needed. Now they became a Corps in their own right, functioning under the Medical Department. The Surgeon-General immediately began the work of putting the new Corps on a sound basis. A total of sixty-two veterinarians were found qualified and were commissioned; this was the nucleus of the force that, a few months later, was to care for animals numbering tens of thousands. An enormous increase of personnel was immediately necessary. In the emergency deans of recognized schools were called on to give the required professional examinations, after which successful candidates were examined physically. The examination requirements were thus made subject to interpretation by men ignorant of Army necessities, and who,

possibly, were liable to the influence of their personal feelings. It was inevitable that an occasional sub-standard man was commissioned. But it was the best plan available, and it resulted in a large number of new officers in the emergency. Defects should be charged against the national sin of unpreparedness which rendered the plan necessary.

It was something of a task to create overnight the functioning organism of a vital service in which experience was totally lacking. Help was needed, and the British were called on to supply it. It is not too much to say that their response was prompt and their services of aid continuous and efficient. They put us on our feet; there is no doubt about it. Colonel J. J. Aitken, a British veterinary officer of long experience and outstanding ability, was at once ordered to Washington to act as adviser. With his aid a tentative system, based on the British, was drawn up, and a manual that included many British features was prepared. This manual was sanctioned and became law. The British War Office, upon request, loaned the Surgeon-General's office a complete set of veterinary field chests and wallets, to serve as models if deemed suitable. Up to that time we had possessed no system of containers suitable for supplying veterinary requirements under active service conditions.

The British containers were finally adopted as models for our Army, one fundamental reason being that our Veterinary Corps was modeled closely after the British Army Veterinary Corps, so that the supply system fitted in with our plan. Further, the British had spent many years evolving a suitable system, keeping constantly in view economy in weight and bulk and simplicity in distribution. During three or more years of strenuous warfare ample opportunity had been afforded to test the

efficiency of this equipment in a most practical way, and it had given admirable satisfaction.

The Veterinary Corps of the National Army was finally established by the issue of orders on October 4, 1917. Regulations for the Army Veterinary Service were approved; tables of organization for veterinary units were authorized; blank forms were devised and a guide for veterinary officers was published. The Corps, after long years in embryo, was at last functioning as a separate self-contained organization, but its path was thorny. Harassments beset its every step. Yet because a veterinary service was necessary, we had one. We had help from both British and French, here and in France. With such help, the American will-to-do accomplished wonders. By the time the Armistice was signed our Veterinary Service was a good one, and stood where it should have stood when we entered the war.

The supply of veterinary officers was an urgent problem for the new Corps. The requisite knowledge and training were not general. Every source was combed, and civil life, the National Guard and graduate veterinarians in the ranks, were brought in to fill the lists. In all, 2,313 veterinary officers were on active duty during the war. The enlisted personnel also presented difficult problems, for stress was laid on familiarity with animals, and this had suffered general decrease as mechanical traction throughout the land had increased. By careful selection men of exceptional quality filled the overseas units, but at home there was less choice. The Veterinary Corps, with other branches, was called on to make use of men unfit for overseas duty, and these were placed in auxiliary remount depots. The Corps had also its share of alien enemies and conscientious objectors. In such conditions efficiency was difficult to attain, and many

complaints arose over the quality of the service rendered by men of this type. They could be depended on for little besides shirking, they were frequently in the guard house or the hospital, absent without leave, or in other ways proving themselves worthless in a war to preserve that peace under which they commonly thrive.

The veterinary hospital service at auxiliary remount depots was unsatisfactory and the proposed system became the subject of vigorous opposition by the Surgeon-General's office even before it was established. It placed the only hospital provision for the entire camp within the depot and under control of the depot commanding officer. It resulted that all sick animals, many of them ill with infectious diseases, were brought into approximate contact with the sound animals supposed to be ready for issue. If the depot was in quarantine, as was the case with some of them all the time, the sick could not be received and much suffering and loss resulted.

It seemed evident that it was absolutely wrong in principle to collect sick animals into a remount depot where sound animals would necessarily be exposed. The General Staff admitted this while the organization of the Veterinary Corps was still under discussion, but the Remount Division overcame it by pointing to the enormous expense that would be incurred if the contracts already left for the construction of hospitals at the depots were not carried out.

This was putting dollars against life, jeopardizing victory by imperiling the Army's animal transport. A fair parallel would be found in utilizing the kitchens of a big hotel as an enteric ward for the town. That would be more culpable only as human instead of animal life would be sacrificed.

Some 300,000 animals were at that time borne on the

strength of the Army, and although no official reports existed showing their condition, it was known that more than half were sick, more than seventy-five per cent. were unfit for work, and that the death rate was high. When this was so during clement weather, it was appalling to consider what would occur when winter set in. To veterinary officers it seemed illogical to expect the Corps to function properly in hospitals located and planned without their advice and even in opposition to their professional judgment.

Protests of the Surgeon-General against the further construction of veterinary hospitals of this type finally bore fruit, and three hospitals planned with his approval were built. Altogether, they could care for less than 2,000 patients. The plans were originally based on a British type, but were extensively revised. Plans for dipping vats were also perfected, and one vat was included with each new hospital.

The work of the Veterinary Corps still lay almost wholly on this side of the water. Here, the feverish haste of preparation was rampant. There were nearly two score auxiliary remount depots, the veterinary hospitals of which required an enormous amount of service. The veterinarian of a depot, besides supervising the veterinary hospital service, was responsible for advising on veterinary sanitary conditions, for the physical condition of animals, for their malleinization, and for the daily inspection for the detection of the sick. These duties were exacting and important, and required for their handling a veterinarian of professional ability, energy, tact, and judgment.

Veterinary service at the permanent remount depots was extensive and exacting, because these served as collecting points for a considerable part of newly pur-

chased animals, and the incidence of various types of disease prevalent among green animals was high. Breeding operations were conducted at all of them and considerable difficulty was experienced with a widespread epidemic of contagious abortion.

In handling public animals during the war, the haste of the emergency and our own inexperience made it impossible to enforce well known principles of animal hygiene. Consequently, morbidity and mortality rates were high. Buying and shipping were very active. Railroads were congested, shipments suffered delay of days and weeks, and the Federal law which requires all animals to be unloaded for food, water and rest once in each twenty-eight hours was not enforced. Animals frequently remained in cars forty to sixty hours, and when unloaded were often placed in pens of limited accommodations. Stock cars and stock yards were infected with influenza, strangles, etc. Apparently there was not time to clean cars between the departure of one shipment and the arrival of the next. Some animals were sick when loaded, others became sick in transit, many arrived dead or incurably sick.

A war of such magnitude, entered upon by a totally unprepared nation, necessarily is accompanied by expense and life loss which would otherwise be inexcusable. As America's attitude of permanent unpreparedness is our own choice, we may excuse these things to ourselves—if we will. Still, the facts in review can add nothing to our national complacency.

The unfortunate animals left the cars for conditions as bad, sometimes worse, than those in transit. Most remount depots were overcrowded and decidedly insanitary. Many were located on low land with clay subsoil, and the corrals became seas of mud. As the season pro-

gressed, conditions became worse. The veterinary personnel was short—about one man to fifteen animals. This was sufficient for direct attendance but fell far short of covering the long list of miscellaneous duties. Here again the type of men in both the Quartermaster Corps and the Veterinary Corps was detrimental; there were many physical and mental defectives, with foreigners and conscientious objectors predominating. Both personnel and material were below par.

Shipping fever in virulent form developed during the winter of 1917-18. It was due to the rapid assembling and transporting of thousands of green animals and it lasted through the spring and into the late summer of 1918—up to the moment when the fresh American armies took the field in their own right to demonstrate American war-winning methods to the weary Allies and to the no less weary Germans. The lack of veterinary personnel was keenly felt at home and in France, but the need could not be supplied.

Skin troubles on this side of the water were rare, and glanders, formerly much dreaded, was well controlled. But nearly every animal purchased had shipping fever, frequently with complications. In the more exposed depots influenza and pneumonia were common causes of death. The worst defects were the mud and accumulated manure and the lack of dry standings. Dry standings are of vital importance in keeping animals well. The English and the French had traveled the bitter road of experience to this conclusion, and our Veterinary Corps should have been able to profit by their journey. The cost of dry standings was an obstacle, but the conditions in certain depots in the United States due to deep mud were most serious, were a disgrace to modern ideas of sanitation, and would have been correctible with a reasonable

expenditure. It was both inhuman and extravagant to permit such conditions to exist.

The overcrowding of auxiliary remount depots continued in 1918. Depots planned for 5,000 animals were frequently called upon to shelter twice that number. Large herds of horses ran loose in the corrals, extensive areas of which were knee-deep in mud and manure. Continued efforts to keep the corrals clean met with poor success. There was no avoiding these insanitary conditions, based as they were on an inherently defective principle. (Only when the animals died or were disposed of could such conditions be alleviated.) Of course the result was excessive disability and loss. The corral system for use in the United States was a failure and should not be tolerated. Individual dry standing for every animal should be rated as a minimum requirement.

The veterinary service at ports of embarkation was organized at Newport News, Va., where a depot of 10,000 animals capacity was established. A second depot at Charleston, S. C., was ready for operation when the Armistice was signed. This veterinary service was analogous to that of the auxiliary remount depots, plus the examination and preparation of the animals for embarkation. The only port veterinary service developed was that at Newport News. Sanitary conditions there were extremely bad much of the time because of the congestion of animals and the mud-infested corrals.

The veterinary service on animal transports required the permanent assignment of officers and men to each transport. They cared for sick animals and supervised the sanitation of animal quarters on the outward voyage, and on the return attended to the cleaning and disinfecting of the ship. A grand total of 66,071 horses and mules were sent to France with our forces and the

losses en route were but 660, or 1 per cent., including 239 lost on the *Hercules* during a rough trip in February, 1918. This was considered a very creditable showing for an organization hastily scraped together of whatever material was available, and functioning under emergency stress.

Work of the Corps in France

When General Pershing's headquarters were removed to France in May, 1917, neither personnel nor plans for a veterinary service went along. Veterinarians were subsequently sent abroad in small numbers as requested, but they were not urgently needed until shipments of animals in considerable numbers began in October, 1917.

When it was decided to hasten the departure to France of American troops, ship tonnage was difficult to obtain, and it was impossible to transport with the troops their complement of horses. In consequence, April, 1918, saw on the soil of France six divisions of the American Expeditionary Force with but 55,378 horses. It was necessary to depend upon the Allies for animals, and they did their best. To some extent the British even robbed their artillery teams, giving us two from each six-horse team. Our buyers went into Spain. The French took a natural lead in supplying the deficiency. Thousands of animals were thus gathered from these available sources, and it necessarily followed that their quality was less high than their price. At the best, the supply was insufficient, and this entailed the overworking of the animals secured. As they were of poor quality and full of contagious disease they rapidly became inefficient, and the morbidity and mortality rates rose.

This tendency to disease was increased by the condition of the camps in which they were assembled and held.

It appeared inevitable in the successive movements that we should inherit many camps abandoned by the Allies. The infected condition of the ground, added to the shortage of efficient veterinary personnel, wrought havoc. Where horses are congregated in large numbers, and where they have been so collected for a long time, the ground becomes foul and the horses tend to become more susceptible to disease. At such camps they suffered more from such ailments as coughs, fevers, catarrh, pneumonia and pleurisy than they did under far more strenuous conditions at the front. This is taken to prove that direct exposure, once the animals have become hardened and acclimatized, is not a predisposing cause of sickness.

It was unfortunate that necessity required the repeated use of such camps. Doubly unfortunate that the success of the American arms should have been imperiled by this cause. But the exigencies of war compel the assembling together of horses in very large numbers. Matters were not improved for the American Expeditionary Force by the marked absence of a knowledge of animal management among the troops.

In September, 1917, a memorandum from General Pershing's headquarters outlined a proposed Veterinary Service of the Rear, and this formed the basis of the War Department Tables of Organization subsequently authorized. But this failed to constitute a comprehensive program, since veterinary service is not confined to the rear but goes wherever there are animals; close contact between the troops and the services of evacuation and hospitalization was lost. Before long it became apparent that the intent was to divorce the Veterinary Corps from the Medical Department and attach it to the Remount Service. Thus there resulted one veterinary service as part of the Remount Service, and another in

each division, each out of touch with the other and each outside the control of the Medical Department, which, on the home shores, continued to enroll and train the veterinary personnel and send them to France, where they had to begin all over again under other authority.

"The Surgeon General's office was not disposed to assent to this arrangement without demur. In November, 1917, two veterinary officers, Major Louis A. Klein and Major A. L. Mason, were dispatched to France. Their mission was to establish with the Army an efficient Veterinary Corps on lines similar to those followed at home. They covered the animal situation in the Allied Armies and submitted a report embodying their ideas of the proper method of dealing with the question. It was contrary in tenor to the views held at General Headquarters in France, and led to no result other than a wide divergence of opinion. Home authorities held that the adoption of the report would have saved the Government many millions of dollars, and increased the animal efficiency of the Army, and consequently of the Army itself, out of all proportion to the changes entailed.

"Some color was given to this view in July, 1918, when the Surgeon General's office received a cable request for a senior veterinary officer to be sent to France for administrative work. This indicated that conditions demanded a material modification of the method of operating the Veterinary Service and implied its return to the jurisdiction of the Medical Department. The cable was complied with and the officer served as head of the Veterinary Service throughout the operations that led to the Armistice; and coincidentally the veterinary service was placed under the control of the Medical Department.

"Immediately after the signing of the Armistice the veterinary service of the American Expeditionary Force

reached its stride. The excellent work of the veterinary officer who was chief veterinarian was bearing fruit. The maximum veterinary personnel was reached February 22, 1919, with 839 officers and 9,701 enlisted men. The number of animals was at its maximum about January 1, 1919, when it reached 192,000. It was necessary to dispose of the animals in France, and large numbers were retained in hospitals until they were in suitable condition for sale.

"The vital work of the Veterinary Corps, that for which all the rest was merely preparatory, was done during the fateful autumn of 1918 when the German forces were driven back and the end of the struggle was reached. The Veterinary Corps, undermanned and over worked, labored endlessly to maintain and promote the mobility of the Army, without which its striking power was as zero. And they were ably upheld by their comrades of other branches. The evacuation of sick and injured animals from the front was involved with the Remount Service to such an extent that many a man may well have wondered to which branch of the service he belonged. At any rate there was a wonderful absence of slacking on the job, and a correspondingly wonderful exhibition of buddy-like help. I love, in this connection, to read the report of the labors of Field Remount Squadron No. 302, Captain A. C. Swenson commanding, on duty with the Third Army Corps at Château-Thierry:

"Sunday, August 25, 1918, the squadron moved 20 kilometers to Charmol and until September 13 was handling evacuations, receiving and issuing animals to the divisions on duty with the Third Army Corps. Many of the evacuations were kept by the squadron and with proper care many were reclaimed and reissued to their

divisions. This proved of great benefit as the replacement of animals was very difficult in the advance zone.

"September 13. Ordered to the Meuse-Argonne sector. Squadron started overland for a location about 175 kilometers distant. All animals used on the march were reclaimed stock. Covered 45 kilometers first day. Marches continued until 18th, when squadron reached Soulesmes-le-Grand and was stationed in French barracks under range of enemy guns.

"September 22. One detachment to Autrecourt, and another to Rarecourt on 25th on special duty, evacuating sick and wounded animals. During this time the squadron picked several hundred wounded animals from the Corps Veterinary Hospital, and these were being conditioned, and were issued as they became fit. No remounts were coming from the S. O. S. depots, and reliance had to be placed on reconditioning.

"Rumors that squadron was to be relieved from this duty, but the need of its continued presence with the Corps was so clear that no change was made.

"September 30. Rarecourt detachment returned. At this time the Germans had been driven so far back that the location around Soulesmes-le-Grand was comparatively safe, and several hundred convalescent animals were stationed at a farm near the village and were turned loose in a pasture of excellent grazing.

"October 2. Autrecourt detachment returned.

"October 13. First shipment of animals from S. O. S. depots received and unloaded. A detachment sent to Verdun and unloaded other animals. On succeeding days several shipments of horses and mules came from various depots. Up to October 25 the squadron received 4,274 animals, which it unloaded at four different railheads. The entire number were issued by the 27th.

To do this there were strings of horses on the roads almost twenty-four hours a day.

"October 25. Captain Swenson promoted, Captain William B. Watkins succeeded to the command. The advance of the army had been so rapid that headquarters of the Third Corps were moving further away, but the squadron's station could not be changed as no railhead was available for receiving animals.

"November 4. Advance station established at Cièrges, where Corps Headquarters were at the time, and deliveries were made with a one-night rest at the advance station. All animals issued by the squadron were well shod; it is believed that not one animal started over the roads without being shod.

"During these twelve days it rained every day and the mud was terrible. All animals had to be on a picket line in the open, as no shelter was to be had. At that time criticism of the squadron's work by an inspector from the S. O. S. was resented. The day was one of those busy days; men were at Verdun and Baleycourt unloading animals; and the entire personnel left at the station consisted of one officer, one guard, one cook, and one sergeant with five men to feed and water over 500 animals which were on picket line and fully one-eighth mile from the watering place. The picket line had been up only 12 hours, and the inspector criticized the work, objecting to the animals standing in the mud, and complained that they were not properly groomed. This was only natural to expect under the conditions. These animals had been received during the night; large numbers were being received at two railheads and over 350 were on the road. It was thought that the officer and six men left for duty were lucky to get over 500 animals fed and watered. The matters criticized were of trivial importance, when



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EVERYTHING WAS IN READINESS FOR THE WET WEATHER. A PACK HORSE BEING LOADED WITH DUCK-BOARDS.

horses were needed so badly at the front at that particular time, and it is known that the men of this squadron were doing their work in such a way that it proved that they were backing up the men with the guns only a few kilometers closer up. Seeing the combatant units passing during the days and nights, some going in and others returning, made the Remount men realize that they had a duty to perform and that they must do it now or it would be of no assistance to the fighting men. The work which was done by this squadron certainly seemed to be the real work of a Remount Squadron, and not merely to furnish safer riding horses, which so many seemed to think were the duties of the Remount Service in the war.

“When the Armistice was signed, the squadron re-

ceived 1,000 horses from the 57th Artillery Brigade and reissued them to the 32nd Division.

"November 15. Captain Watkins transferred, First Lieutenant C. H. Fischer took command.

"Sunday, November 17. Squadron started the march to the Rhine as Corps Troops of the Third Corps. In five days marched 150 kilometers and halted two days to handle evacuations until the Mobile Veterinary Hospital came up. December 3, they crossed into Germany. December 19 they took station at Ehrenbreitstein, remaining there.

"Their attention then turned to a lighter side of army life, and at the Third Corps Horse Show on March 7 and 8, 1919, the squadron took blue ribbons in every class in which it entered in the harness classes, and also won the championship harness class of the Show.

"When the 42nd and 32nd Divisions turned in their horses the squadron received 1,100 animals. Of these 400 were sold at auction."

The report of Captain Fischer concludes: "It is believed no squadron has done more to put the Remount Service on the records of the A. E. F. than has this squadron, which was the one that blazed the trail of handling the Remount work for an army corps and its divisions.

"This is due to several reasons, but the capability of the personnel was realized by the Corps Remount Officer and the Officers of the squadron, and they have fully fulfilled every test they were put to."



LOADING HORSES INTO A BARGE.

BRITISH ARMY VETERINARY CORPS

THE Great War brought to the British Army Veterinary Corps its golden opportunity. For the first time in recorded military history an animal-serving organization was permitted to carry through a definite plan of its own. And the British service doubly justified itself; first, to the broadly merciful impulses of all civilized people; and secondly, economically, to the over-loaded British taxpayer.

It is not too much to say of veterinary service in the armies of the Allies that the French and Italian were excellent, while the British from the beginning set an example to the world. At practically all times British

armies were adequately supplied with horses and mules by the Remount Service, and a large factor in this success was the efficiency of the Veterinary Service. And let America in her unpreparedness take notice that this efficiency was due primarily to the fact that the Corps was organized long before 1914. It was no mushroom growth of a night to meet a vital emergency. The British paid their bill for unpreparedness in the South African war of 1899-1902; they learned their lesson then; they took it to heart, and from that day gave time and thought to the creation of an efficient veterinary organization, which when 1914 broke was ready, requiring only expansion as needs arose.

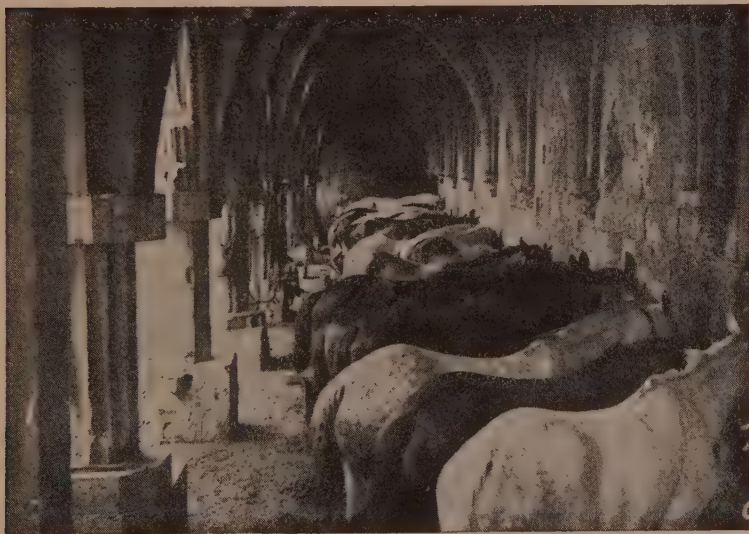
This efficiency was justified in its results. All that could be done for animals under War's terrible conditions the Veterinary Service did. In no previous war did animals fare so well. Of the many thousands of horses and mules sent to the British veterinary hospitals suffering from disease or wounds, 85 per cent. were re-issued, cured. And, above all, this very humaneness of man for beast brought nearer that higher civilization in which man shall be humane to man.

The results of army veterinary efficiency did not fail to impress the public, whose taxes supported the service. People quickly learned that it is cheaper to cure a disabled horse than to buy a new one. They realized that animals were being bought and used by the hundred thousand, and they gave the veterinary service grateful support. Say what you will, a very sympathetic connection exists between the pocket and the heart.

The British had no highly organized veterinary corps in the South African war. Their service then was somewhat akin to the American service of 1914. They had a few officers and veterinary surgeons whose duties were

practically limited to professional attendance upon sick and wounded animals as chanced to come within their official scope, and the mortality among army animals was in excess of 55 per cent. for each year of the war. Compare that with an equine mortality of 9.47 per cent., which was the highest for any year of the Great War, and the importance of the improvements in the British organization will be appreciated.

Wherever British troops went in the Great War, horses went; and wherever there were horses, the British Army Veterinary Corps functioned. At Salonica and Gallipoli, in Palestine, Mesopotamia, Africa, and France, it relieved suffering and conserved life. But that is not the end of the story. The Service covered the entire field of the military use of horses. It saw to it that only



A CLOISTER FOR A STABLE.

sound animals were accepted, it inspected and bought the best in the horse markets of far countries, and it cared for these remounts in the overland and overseas journey to England. It ensured the efficiency of animals with the field forces by preventing the introduction of contagious diseases, and by taking prompt measures to check the spread of such diseases as appeared. It worked right up to the farthest front, and prevented wastage by the prompt application of first aid. It evacuated the sick and wounded animals, the presence of which hampered the army's mobility and efficiency. It attended to the hospitalization of such animals, and handed them over, restored to health, to the Remount Service for re-issue. It replenished veterinary equipment, and it maintained schools of farriery. It is worthy of notice that all the officers of the corps hold diplomas from veterinary colleges with a four-year curriculum.

Farmers and breeders in the United States sold far in excess of a million horses and mules for British military use. British veterinary surgeons were present to pass on the soundness of each animal before acceptance. Other surgeons were on duty in the horse ships to care for the animals,—nor was their work quite as care-free as yachting on a pond. In July, 1915, for instance, the steamship *Anglo-Californian*, carrying 925 horses, met a German submarine off the Irish coast. A running fight of three hours ensued, during which the Captain was killed. When the subordinates of the veterinary service put off in the ship's boats for safety, Civil Veterinary Surgeon F. Neal remained alone at his post, and gallantly carried out his duties. Single-handed, and under the enemy's fire, he attended the wounded men as well as the animals in his charge. Twenty-six horses were killed, but the remaining 899 reached England in good condi-



BY PASSING THE HORSES DOWN THIS NARROW LANE THE VETERINARY SURGEON CAN PICK OUT ANY PARTICULAR ANIMAL.

tion, for which sole credit was given to Surgeon Neal. Even in the strain and stress of war, when gallant actions were not infrequent, Surgeon Neal's conduct was considered so noteworthy that the Admiralty thanked him publicly, and presented him with a gold watch.

Horses arriving in England were usually quarantined at depots for six weeks and then distributed among reserve units for training and conditioning. This preliminary completed, they were taken over at Swaythling by the Remount Service for embarkation to the various base

ports in France; and from these they were distributed, under direction of the Director of Remounts in France, to the armies in the field. Some horses, however, took longer to "harden," and were consequently given more time before being shipped, some cases even being sent to a veterinary hospital for conditioning.

The Veterinary and the Remount Services worked hand in glove. The great Remount station at Swaythling was the neck of the bottle through which all horses were poured from England into France. The horses reached the five base stations fit for anything a horse could do. Other streams of horses were pouring into these stations from the veterinary hospitals and convalescent depots in France, where the Veterinary Corps reconditioned animals that had done a turn of work with the armies. Can you imagine the tales of service these veterans told the raw recruits from England in many an equine conference!

The armies needed animals; they must be served. In each army the Director of Remounts tabulated the demands made upon him: so many mules, so many horses, in their classification of heavy draught, light draught, chargers. His requirements were submitted to the directorate, and an order for the issue of the animals was sent to the nearest station. Sometimes the animals were forwarded by train, which saved time but used rolling stock that could ill be spared, so that the custom of sending by road became general. This plan was beneficial, for the march caused the animals to reach the front in better condition,—and on the fitness of a single horse the lives of many a man might hang. On all the roads, running fan-wise from base stations towards the front, there were staging camps where men and horses rested overnight, with good water and abundant rations assured.

Mile-long strings of horses and mules came and went. They were forever passing one another, the well and hearty and the sick and worn. It does not pay to cumber the front with sick animals; indeed it is criminal to do so; and it is up to the Veterinary Corps to pick them out and move them at the first sign of illness. And so the columns passed and repassed, some towards the guns, and some to the comforts of hospital and the sweet green grass of rest camps.

Whenever another yard of grounds had been bought, at a great price, and the front had bulged forward into No Man's Land, the men crawled ahead, and the horses followed into the churned chaos. These horses were no spirited war chargers, but just equine hewers of wood and drawers of water, so to speak, doing their humble and necessary bit in mortal discomfort. They had left all sound footing, and were sinking in mud. They pulled and hauled at their tremendous loads, and no matter how the mud stuck and clung, no matter how it seemed to grow deeper and deeper, they got their burden through. What is more, they did the work over the ground where lorry and tractor would have been useless. There they were, unsung heroes of the war, the faithful horse and the steady mule, plunging on, knee deep, keeping close to the line of men with food, supplies, and ammunition.

With a lull in the work came a rest for the horses. But did they rest? Never in such mud, for there was no standing for them. When they halted, they sank in mud. They pulled up one leg; the others sank deeper. Growing weariness their lot, and sickness near. No horse could stand in that mud and keep well. Back of the lines war was indeed hell for horse and mule.

Field-Marshal Haig was always deeply interested in animal welfare. Moreover he became impressed by the

menace to victory occasioned by the terrific wastage of animal life during the hard winter of 1916-17. Heavy rains had turned Flanders and the district of the Somme into appalling morasses. Wheeled traffic had been abandoned, and horses and mules had become pack animals, and thus loaded had often been swallowed up in the mud. To cap disaster there had been a shortage of oats, but the underfed, overloaded animals had been kept at work to the end. For many the end was not far off. During one month the percentage of losses increased to an appalling figure. At long last, however, better weather came, the full ration was restored, and the disability percentage dropped.

Intensive instruction in the care of horses was now undertaken, so that the labors of the Veterinary Corps might find support in the increased intelligence of the men making daily use of the animals. A horse-master was appointed in each army corps, with subordinate horse-masters in each minor unit. They maintained a watchful eye, gave advice, and worked unceasingly for the improvement of the necessarily hard lot of the animals. The good work was helped along by the Director of Veterinary Service in France, who instituted at each of his hospitals a ten-days course of instruction for artillery and infantry transport officers. About three hundred and fifty officers took the course each month, and the need of such instruction may be surmised from incidents. One young officer, enthusiastic but ignorant of horse lore, lodged an official complaint as to the quality of the rations furnished. The oats, he wrote, were so small that they lodged in the horses' teeth. "Indent for toothpicks," was the ironical advice he secured. He was guyed unmercifully by his comrades, some of them probably as ignorant as he. Later this officer filled a line

vacancy, went over the top, and won the M. C. Then all was changed.

This intensive instruction bore good fruit, more especially as the number of animals employed steadily increased. In the following spring, for instance, 30,000 horses and mules were cared for in the British veterinary hospitals and convalescent horse depots. The animal situation steadily improved, until the wastage actually reached a lower figure than had been shown during 1912. That is to say there were fewer deaths from enemy gunfire, disease, castings, "missing," and all other causes that must be taken into account during war, than there had been during a year of peace. There is cause for congratulation in such a record.

The horse never lived that could carry on in endless quagmires and remain the horse he had been. Working and standing in mud caused a number of special diseases, such as "grease," cracked heels, sloughing of the skin around coronet and pastern, and ulcerative cellulitis. This last is a particularly ugly trouble produced by a microbe which attacks the legs, creeps up, and may in time enter the body and assail the kidneys: when this happens the horse is doomed.

The number of foot injuries was very great, the principal cause being picked-up nails. Several hundred cases of quittor occurred weekly from this cause alone. The material for troops came packed in light wooden cases, and as these were opened and burned, the nails were scattered broadcast. Efforts were made to prevent this danger, but they were only partially successful, and inventive genius was turned towards devising a practical metal protection for the sole of the foot.

Heavy draught horses are peculiarly susceptible to respiratory troubles; fever and catarrh find them easy



FRENCH VETERINARY SURGEONS OPERATING ON A WOUNDED ARMY HORSE.

victims, while "general debility" was the greatest hospital filler. All horses are sensitive to changes of climate, food, and water, and they are susceptible to contagious diseases, being less robust than mules.

As to gunshot wounds, the horse, despite his greater size, is less susceptible to injury than man, for its hide has great resisting power. The veterinarians performed wonders in their treatment of wounded animals. One surgeon was fond of displaying the twenty-seven shell splinters he had extracted from one horse—which subsequently returned to duty. One of the young untried surgeons of the Veterinary corps rescued a German horse with three bullets in its shoulder. He was advised by his superiors to give the poor beast the bullet of mercy, for the wound was a neglected one. But the young surgeon persisted in his attempt to operate. He was suc-

cessful, and the horse lived to serve against its late owners.

Disease went and came in waves. Parasitic skin diseases have always been one of war's distressing accompaniments. Both men and horses suffered from lice—the memory of the “cootie” is undying. But a far worse scourge for the horse was mange. Entire hospitals were devoted to the treatment of this disease, which was especially virulent in winter. Sarcopic mange, the worst form, is caused by a parasite that burrows under the skin and lays its eggs. Formerly oily dressings were applied to parts affected; the modern treatment, both for prevention and cure, is to dip in a calcium sulphide bath. Hundreds were dipped daily. The bath deteriorates after a couple of thousand horses have been through it and must be renewed. Judicious feeding on a



WARM BATH FOR SKIN DISEASE CASES.

nourishing diet, patient nursing, and good grooming, are parts of the cure. Occasionally animals were treated by being placed, for two hours at a time, in chambers filled with sulphurous acid gas, their heads alone protruding into the fresh air.

Next to mange, ophthalmia was the chief source of anxiety. The first symptom is conjunctivitis, a membranous inflammation which causes watering of the affected eye. In time an opaque film settles over the iris, causing blindness, either partial or total. In either case the animal loses much of its usefulness. Among horses in the South African war a form of ophthalmia was rife that in many cases caused the eye to burst. The form common in France was known technically as irido cyclitis. It was peculiarly a war disease, induced by low condition, exposure, irregular exercise, and errors in feeding. Symptoms are alleviated by a hypodermic injection just above the affected eye. Possibly the precise cause of the trouble is not yet known. It seemed to some observers that American horses and mules that had been fed on cotton seed were especially subject to ophthalmic attack, but this was not definitely established.

But even the noblest horse cannot forever endure the rack of war. He cannot serve time after time, and time after time fall back for repairs, and then renew his strength and unabated vigor. At length there comes a day when he has earned his discharge, and the veteran stands dumb before his judges. His record speaks for him, and the final judgment of the Veterinary Board, like their care of him from the first, will serve both humanity and utility.

It may be that the veteran is adjudged to be past all work, that life holds for him no more duties to be done. Then his gallant life is brought to an end, and the body

that harbored an indomitable spirit may serve as food, or be reduced for by-products.

But it may be that a happier fate awaits him. If there is still some work in the old horse, he may find a home in the quiet routine of the farm, where one may hope some humane and intelligent owner will always bear in mind his four-footed workman's record of war.

The British Army Veterinary Service, in all its magnitude, may briefly be summarized as follows: It is organized under a Director, with his Assistants. In order follow, (1) Veterinary Officers with field units; (2) Mobile Veterinary Sections; (3) Veterinary Hospitals; (4) Veterinary Convalescent Depots; (5) Depots of Veterinary Stores.

Nothing in the entire organization is more interesting than the Army Veterinary Stores. Here are stored drugs, bandages, all kinds of equipment for the service of army animals, ready to be shipped to every quarter of the globe, with the sole exception of India where a separate service is constituted.

The great Contract Department of the Veterinary Stores advertises for samples. When the samples are approved, hundreds of tons of supplies are ordered. In the Stores these wholesale supplies are separated into smaller quantities, and when an "indent," or requisition, is received, a wheeled table is moved from shelf to shelf, the items collected on it and checked. In the packing sheds they are checked again. Some of the original shipments at the beginning of the war ran as high as 300 tons, but during the war the largest week's output was 50 tons.

It was after the signing of the Armistice that I had the opportunity of inspecting two great Veterinary Hos-



TRAINING ESTABLISHMENT AT ALDERSHOT. A BARGE LOAD OF HORSES.

pitals at Tidworth and Bulford. They proved to be delightful examples of that efficiency that held up and did not crack under the strain of war. I reached them from Salisbury, where I made the acquaintance of another British system that stands up well—the English Inn. It was a very old and rambling structure, with an air of competent hospitality in all its fittings. It antedated sky-scrapers by centuries. It covered much ground; a chance guest searching for his room might well have resorted to the use of a pocket compass. Walls were hung with sporting prints, tables piled with magazines. In the dining room, behind leaded windows, I was served by a dignified old waiter in evening clothes, and enjoyed a good lunch, well cooked and very hot.

After lunch we drove with a soldier-chauffeur by the old Roman fortifications of Sarum, along an old Roman road, across Salisbury Plain. It was mid-March, and the yellow gorse was bursting into bloom. A raw wind drove a thin, stinging rain against our faces, and through it we saw farmers at the plough, while farther along rolled the wide grass country where tens of thousands of Eng-

land's youth had drilled to meet the sudden call to arms. We looked out over the camps where at one time a quarter of a million young men had been assembled. There were the trenches cut through chalky soil behind barbed-wire entanglements, and there the bayoneted dummies, the scaling fences, the loop-holed walls,—all the mimicry of war. But the men themselves had done their work and gone on,—some to die for King and Empire, some to serve again in the fields of peace.

Such was the setting of the countryside through which we drove through Bulford and on to Tidworth, an army post which had had a pre-war veterinary hospital with one hundred-case capacity. It was a surgical hospital, with all equipment for operations, while Bulford on the other hand was equipped for handling contagious diseases. During the war Tidworth Hospital served about 9,000 animals. I found it under the command of Captain Barry, an officer so keen for its reputation that he not only did not spare his strength and his efforts, but even (so it was reported,) spent a portion of his private income to maintain the hospital at its high level. This spirit—which was widespread—accounts for much of the success of the service. In immediate charge of the hospital was a young veteran who had been with General Townshend at Kut el Amara, had been taken by the Turks, had escaped and been recaptured, and had at length been liberated after the Armistice. It fell to him to show us the hospital.

The building was fitted with loose boxes about nine by twelve feet square, and had high ceilings, whitewashed walls, windows for light and ventilation, and grooved tile floor. The tiles were laid in various patterns, as if for test, those with parallel grooves lengthwise of the stand probably being the best from point of cleanliness.

Cast iron fixtures in each box were fitted with galvanized iron receptacles for food and water. In some boxes a net bag containing hay hung on the wall—a device that prevents waste and keeps the patient content during the night. The similarity to human medical practice was indicated by the chart hanging in each box, giving the number and a brief description of the patient, name of ailment and daily temperature.

There were larger stalls designed for two horses, each being tethered, and a long pole, or bail bar, swung on chains between. Horses could readily get a leg over the pole, but could just as readily get it back again.

The dispensary carried all necessary drugs. I noticed also a dipping vat, a furnace for burning infected bedding, a drying shed for damp bedding, and a large iron retort for the dry sterilization of blankets.

The large well-lighted operating room was divided down the middle by a low concrete barrier. On one side was a bed of coir mats, covered with heavy canvas tightly stretched. This was the operating bed. Horses needing operations were brought in here. Their shoes were removed to prevent the cutting of the canvas, a strap adjusted at each fetlock, and the feet drawn close together and secured with a chain. The patient then sank upon the mattress. If the operation involved pain, four ounces of chloroform rendered the animal insensible. On the far side of the room were tables with glass cases containing instruments, bandages, absorbent cotton, and so on. No professional appliance was lacking, and the humanities rule.

At Bulford I found an establishment, which before the war could serve four hundred animals, expanded five-fold. The new temporary stables were chiefly long sheds entirely open at the back, where the horses were tethered

with plenty of interval between. They were clipped short, but well blanketed for protection against raw winds. Along the roads and between sheds were long metal watering-troughs, each labeled with the name of some disease, as "Mange." Horses thus affected were watered and fed at regular intervals at the call of a bugle and under the eye of an officer, so that mistakes seldom occurred. Contagion was rigidly guarded against at all times.

General veterinary and medical practice march together so far as hygiene, sanitation, and antiseptics go. They diverge at the point of speech; the man can declare himself sick, the horse can not. Therefore a keenly trained power of diagnosis is the veterinarian's first qualification, and rigid daily inspection must be made if the animal is to be protected. To these inspections a large number of patients owe their successful treatment at Bulford.

Ordinarily when a patient comes in, he is clipped clean with an electric clipper, thoroughly brushed with an electric revolving brush, and given a bath. If he shows even the beginning of mange, the signs are apt to become apparent, and his next trip is to the dipping vat. This is a long deep well, filled with a steaming, creamy fluid of calcium sulphate. It stands near the building in which the chemicals for the bath are mixed, and in which there is a heating arrangement for raising the temperature of the bath to the necessary point of 120° F.

The animal plunges into the well at one end and is submerged. He swims along a few yards, and at the far end scrambles out by means of an inclined plane. Then he is scraped clean, walked about until dry, blanketed, and tied. The process is repeated several times before convalescence is entered upon.



SCRUBBING A SKIN DISEASE CASE AFTER A WARM DISINFECTING BATH.

I was shown the worst case of mange in the hospital. The patient, a horse, had lost practically all the hair of the sides, belly, withers, neck, and head; these parts were white and appeared perfectly smooth. So tender was the skin that sulphur vaseline had been substituted for the calcium sulphide bath. Many of the hair follicles had been destroyed, and the coat could never regain its former thickness, but the horse was recovering, and, like all the other patients I saw, looked well-fed and contented.

A feature of the equipment was a clipping machine that could quickly be converted into a grinder for putting an edge on the clipping knives. A special room was set apart for mixing the rations of grain and chops, which ensures better mastication of the grain. Turkish baths, with wet and dry steam, were being installed, with a

thermometer outside, so that the attendant would not have to be inside with the patient.

Too much emphasis cannot be laid on the proof seen in these hospitals that England had profited by the lesson of the South African War. Thoroughly efficient in peace, they had only to continue functioning as usual when war broke out, but on a larger scale, and the model being already in existence it was not a difficult matter to establish similar hospitals at other suitable points. Competent animal backing for the men of England's armies was thus assured from the beginning of hostilities, and absolute dependence was placed on the Army Veterinary Corps for the supply. I wish it were possible to state just what share of final victory was due to the loyal devotion and efficiency of this service; the unknowing public, with its attention glued to the firing line, would be surprised. But that may not be. Enough to say that of all the intertwined factors none was more vital.

WORK OF HUMANE SOCIETIES

WITH all its efficiency, there was never a moment in the war when the army veterinary service did not face demands in excess of its power. Wastage of animal life was terrific, yet success depended so greatly upon animal help that no efforts could be spared to keep the supply somewhere near the demand. Buying new, sound horses was one thing; restoring the sick and injured was another still more important. But there was an ally. The overworked army veterinary service everywhere was helped, strengthened, sustained, by the humane societies of England and America.

Perhaps the Blue Cross was first in the field. This is a branch of the Dumb Friends League in England, and dates back to the Balkan war. Its object is to alleviate the sufferings of horses and other animals in time of war, and the chaotic smash of peace establishments which accompanied the German rush through Belgium upon France gave it sufficient scope. Both French and Belgians were in dire need of its help, for both were taken unprepared. Its response was prompt, generous, and continuous. Base hospitals were established into which streams of disabled animals poured. It was claimed that the worst cases were sent to the Blue Cross hospitals, and this may well have been true at first, when the Blue Cross was able to give better service than the army could. When Italy came into the war the Blue Cross extended its support to the Italian organization of the same name, and continued to finance it. Excellent

work was done for Italian horses; all who saw anything of the Italian Blue Cross hospitals confirmed this.

The advent of English forces into Europe brought British animals also to the Blue Cross care. Perhaps this lightened the work of soliciting financial support, for some people, afflicted with a kind of super-patriotism, had refused support on the ground that only French horses were treated. Patriotism is a fine sentiment, but it is a sentiment to which dumb animals are unable to respond. Any animal, needing help, was given all the care possible at Blue Cross hospitals.

The work of the Blue Cross was active and wide. It furnished 2,000 units of the British Expeditionary Force with a great variety of veterinary requisites; it maintained horse ambulances, fully equipped, in various camps; it presented a motor horse ambulance to the British forces at Salonica, and another to the Canadian. And before the war was half over it was appealed to by the French Government to establish in Paris a fully equipped canine hospital, and to add kennels to each of its hospitals in France, where the "chiens de santé" which were employed in large numbers might be treated by the Blue Cross veterinary officers. And the Blue Cross gave the precise response that was desired and expected.

The Blue Cross hospitals in France were said to be the largest and most up-to-date institutions of their kind in existence. Mr. Charles W. Forward said of them: "Their very sites were selected with care and they are all close to running streams so that a plentiful supply of pure water is always available. They all boast of spacious sheltered meadows where the horses can freely graze. Each hospital has its own operating room, pharmacy, sick wards, and isolated quarters, for those animals suffering from some contagious disease, such as mange."

In the British army provision is made for the employment of persons who are interested in humane measures and are anxious that there shall not be unnecessary suffering. It is recognized that such persons are able to do many things that add to the comfort of animals and to the pleasure of those having them in charge. It is provided that all offers of veterinary assistance when accepted by the Army Council, shall be supervised by the Director of Veterinary Services of the forces in the field. This brings volunteer work under military control; it gives assurance that the work will be properly supervised and the funds profitably expended.

At the beginning of hostilities the Royal Society for the Prevention of Cruelty to Animals volunteered veterinary assistance. The offer was accepted by the Army Council. This society is one of the oldest organizations of its kind in the world. It is directed by Mr. Edward G. Fairholme, who enlisted in the British Army Veterinary Corps and was given the rank of Captain. Thus he was in a position to ascertain how diseased and injured animals were handled and what was most needed, information which aided wonderfully in the obtaining of funds to carry on the Society's army work.

The Society helped, primarily, by finding men with the right knowledge of horses and steering them into the veterinary service. Very soon the Army Council accepted its offer to start a fund for sick and wounded horses, with which to purchase veterinary supplies and establish hospitals. The fund was generously sustained, and efficiently administered, and did much to improve the lot of horses in distress. The society realized at the outset that work for animals on the battlefield could only be done effectively if organized by a personnel specially trained for the purpose, and under military orders.

Therefore the committee of their war funds concentrated attention on the provision of horse ambulances, motor lorries for the carriage of fodder, etc., corn cutters, chaff cutters, rugs, bandages, and other requirements. It also built and provided hospitals for 2,500 horses on the lines of communication.

Especial stress was laid on the motor ambulances in which one or two disabled horses might be transported, and later on the American organization also paid attention to the provision of these ambulances which were of great help in saving equine life. They made it possible to transport wounded animals to hospitals where operations could be performed and the horse restored to usefulness. Field-Marshal Lord Haig, in acknowledgment to the Duke of Portland, Chairman of the fund, wrote:

"As you are aware, animals have been exposed to very severe trials and hardships, and have suffered heavily, not only as battle casualties, but through the exhaustion and loss of health consequent on the severe stress of work. Their lot has, however, been greatly lightened and their comfort in sickness materially added to, by the assistance which the fund has been able to give.

"I would specially like to express my thanks for the provision of Motor Horse Ambulances, which have saved so many animals and have proved indispensable adjuncts to veterinary service; also of the veterinary hospitals complete with every known convenience for up-to-date surgical and medical treatment.

"May I offer my congratulations and express my appreciation on the work which has been achieved by your committee and helpers."

The valuable aid afforded by these ambulances is indicated by a letter written by a veterinarian in the field;

"Yesterday morning I had to get the horse ambulance to take away a wounded mare. She had been sent down to me three days before with a bad wound in the elbow. It became worse and she could not put her leg to the ground, but would stand looking around for some one to come and take away her pain. So I got the ambulance. It was padded inside and we hoisted her in with a padded block to support the bad leg. Then we tied ropes to hold her steady, and off they went. Queerly she looked over the top of the box at the lines of wondering horses; and queer it was to see her, who had bravely done her share of pulling on stricken roads at midnight among the crashing shells and whistling shrapnel, no longer pulling, but being pulled away to a horses' hospital. I hope they saved her. She was a good mare."

The work of these societies was closely watched by similar organizations in America. The American Veterinary Medical Association and The American Humane Society sent a representative to the war area whose mission was to study the usefulness and the care of horses in war. The preliminaries found concrete expression later when the American Red Star Animal Relief was formed.

This society, whose functions were included in the general service of The American Humane Association, was part of an international movement for the relief of army animals that had been started in Switzerland in 1914. Dr. William O. Stillman, then president of The American Humane Association, became Director-General of the organization in the United States. He had before his eyes the example of the Royal Society for the Prevention of Cruelty to Animals, which had created a service that was of great aid in reducing the hardships of British army animals. That the United States would

be drawn into the struggle was so evident to Dr. Stillman, that he proposed to the Secretary of War that The American Humane Association should provide a similar service for the American army.

Correspondence proceeded, and in May, 1916, Secretary of War Baker wrote Dr. Stillman in appreciation of the offer, and pointed out that all countries in time of war must depend to a large degree on the voluntary assistance of citizens, especially in the case of the sick and wounded, both men and animals: that The American Red Cross had been proclaimed by the President in 1911 to be the only volunteer society authorized to render aid to American land and naval forces in time of war: therefore, all other societies wishing to assist could function only through the Red Cross. In 1917 the Red Cross was busy organizing base hospital units and other formations that included both personnel and equipment, and it had its field in assisting the Government in the care of its human sick and wounded. Secretary Baker later wrote that The American Humane Association could very well function similarly toward the sick and wounded animals in the country's armies.

Steps were immediately taken to popularize the work and 125 branches were established throughout the United States. The intensive method of the "drive," the accepted method of the day, was resorted to, and in mid-December of 1917 the Christmas spirit of helpfulness was utilized in giving the appeal greater urgency. "You can get along without horses everywhere but in war," was the phrase quoted from army officers; and the horses had to be cared for. The appeal was irresistible; latent in everyone was the spirit of the animal-lover, and large sums were collected.

When training camps and remount depots were estab-

lished, the field work of the Red Star began. Several veterinary ambulances, motor or horse drawn, were furnished to cantonments; automobiles and motorcycles were furnished to enable camp veterinarians to visit sick or injured animals at distant points. Several supply buildings were erected for the use of army veterinarians, and large quantities of bandages, surgical instruments and drugs, stable supplies, including blankets, fly-nets, brushes, clipping machines, brooms, emergency shoes, etc., were sent to army camps at the request of veterinarians. Over 150,000 "First Aid to Army Horses" leaflets were supplied for soldiers detailed with horses, upon the request of officers and of the soldiers themselves, as well as of veterinarians. In such ways the Red Star found ample outlet for its energies during the period of preparation that preceded actual conflict. It was of great value, not only in the information spread and the actual relief afforded army animals, but also in the impetus given to animal protection in scores of cities of the United States.

Meanwhile the American Red Star Animal Relief was pressing the War Department for official recognition. Perhaps the method in vogue with the British appealed to them; but that method was based upon the British Army Veterinary Corps, a methodical organization of many years' standing and experience, and the United States Army was barren of any such organization. Consequently Washington was not inclined to follow the British lead in its entirety. Both the Secretary of War and the Surgeon-General were inalterably opposed to the grant of any degree of official recognition to the Red Star that would authorize or enable it to go before the public and solicit money on the ground of the nation's need, or of any pressing need of animals in the army.

There was no shortage of public funds. Both declared that Congress had appropriated all the money necessary to meet the requirements.

That was true. But what was also true was that the army veterinary organization, which should have been entrusted with the administration of affairs and the expenditure of that money, was existent in name only. The control of the army's skeleton veterinary service had been transferred to the Medical Department but a short time, and the Surgeon-General was having plenty of trouble in building a workable veterinary organization, on modern lines, of the size required. The injection into official confusion of a civilian element could only result in making confusion worse confounded. The Government's resources were known to be adequate, and efficient and experienced officers from the British Veterinary Service were in Washington giving friendly aid. It was in no spirit of boastfulness that our army officials expressed their confidence in the ability of the Army to care for its own animals.

This clash of interests remained unadjusted until June 7, 1918, when Secretary of War Baker defined the precise status of the Red Star organization, and this was followed by Circular No. 25 from the office of the Surgeon-General, limiting the conditions under which a veterinarian was authorized to accept gifts from organizations for use in the performance of his official duties. The official provision ran thus:

"In a manifest emergency when some particular article is not available when needed, it may be accepted. This applies only to supplies and equipment on the official veterinary supply table. Ordinarily there should be no shortage of supply table articles. Investigations in this office have proved that the great majority of

instances of shortage reported have been due to the failure of the responsible veterinarian to make proper requisition. Whenever a gift of this nature is accepted, prompt report will be made to the Surgeon-General, stating the conditions under which it was obtained, the reasons for the existence of the shortage originally, and what steps have been taken to prevent its repetition.

"Money gifts may not be accepted.

"Articles not on the veterinary supply table will not be accepted without the prior authority of the Surgeon-General in each case.

"The only organizations from which acceptance of gifts has thus far been authorized are the Red Star Animal Relief and societies operating through the American Red Cross."

On the basis of the last clause the statement was given wide publicity that the Red Star and the Red Cross had been granted the same official recognition, and the solicitation of funds was pushed. An ethical point was involved which has been the subject of wide divergence of opinion among people equally devoted to the work of relieving suffering, and possibly it never will be definitely settled. But whatever the fine edge put on the matter, it remains undeniably true that the Red Star performed a very valuable work, from its beginning up to the last moment in which its services were needed.

A point of which enthusiastic civilian would-be workers were sometimes oblivious was the painful lack of ship tonnage. This prevented many a willing patriot from taking a free trip abroad in semi-civilian status. If all the equipment and all the personnel thrust forward by various societies had been accepted and transported, there would have been few ships available for the two million fighting men that the United States placed in

France. This was somewhat pointedly called to the attention of the Red Star when it proposed to furnish veterinary ambulances for use in France—following the service so successfully performed for the British by The Royal Society for the Prevention of Cruelty to Animals. These vehicles were definitely declined, unless they could be manufactured in England; thus saving ship space for material deemed of more importance.

It was feared that such manufacture would prove impossible, but Dr. Stillman was successful in enlisting the cooperation of Captain E. G. Fairholme of the R.S.P.C.A., who materially aided the American Red Star Animal Relief in having the desired motor veterinary ambulances built in England. Eleven were built, at a cost of more than \$60,000, and presented to the American Expeditionary Force. Each would hold two animals. In accepting them General Pershing said: "They will be of great service and will be turned over to our Veterinary Corps for its exclusive use." They proved to be a most valuable aid in transporting sick and disabled animals, and won high praise for the Red Star from the army's chief veterinarian.

A two-wheeled horse ambulance, designed and built by the Red Star, proved so capable and popular that the Government adopted the design and constructed a large number of them.

Thus the American Red Star Animal Relief was launched and won its way to recognition. The war did not limit the field of its labors, nor did the close of hostilities end its usefulness. It is still functioning in a wider field than before, a competent instrument in the hands of those who would prevent animal suffering.

Official recognition of the Red Star's war work came when it was granted permission to erect an artistic bronze

tablet in the War and Navy Department building at Washington, commemorating the indispensable service rendered by animals lost in the war. The tablet was given a permanent position at the entrance of the War Department building, where it was unveiled October 15, 1921, by Mrs. Warren G. Harding, wife of the President.

The inscription reads:

"This Tablet commemorates the services and sufferings of the 243,135 Horses and Mules employed by the American Expeditionary Forces overseas during the Great World War, which terminated November 11, 1918, and which resulted in the death of 68,682 of those animals. What they suffered is beyond words to describe. A fitting tribute to their important services has been given by the Commander-in-Chief of the American Expeditionary Forces, General John J. Pershing, who has written: 'The Army Horses and Mules proved of inestimable value in prosecuting the war to a successful conclusion. They were found in all the theaters of preparation and operation doing their silent but faithful work without the faculty of hoping for any reward or compensation.'

"This tablet is erected by friends of the Horse and Mule in the United States under the auspices of the American Red Star Animal Relief, a department of The American Humane Association."

The exercises of the unveiling and dedication were simple, yet impressive. Presentation was by Director-General William O. Stillman. On behalf of the Government the presentation was accepted by Major-General Willard A. Holbrook, Chief of Cavalry, U. S. A. General Holbrook said in part:

"Through ages of conflict and strife the horse has been the constant companion and steadfast friend of the

soldier, sharing his sufferings and dangers, his toils and hardships, and consecrating the battlefield with his blood.

"The mule likewise has been the army's devoted friend, patiently bearing his burden that the army might be supplied.

"Our British allies have paid high tribute to the splendid service rendered by the American horse and the American mule during the World War. Both were as indispensable to the successful prosecution of the war and to final victory as were shot and shell.

"Many mechanical devices were adopted as a partial solution of the problems of transportation involved, but in the last analysis it was found that the requisite mobility for success depended upon the horse and the mule. They there remain today, as always, essential factors of successful warfare.

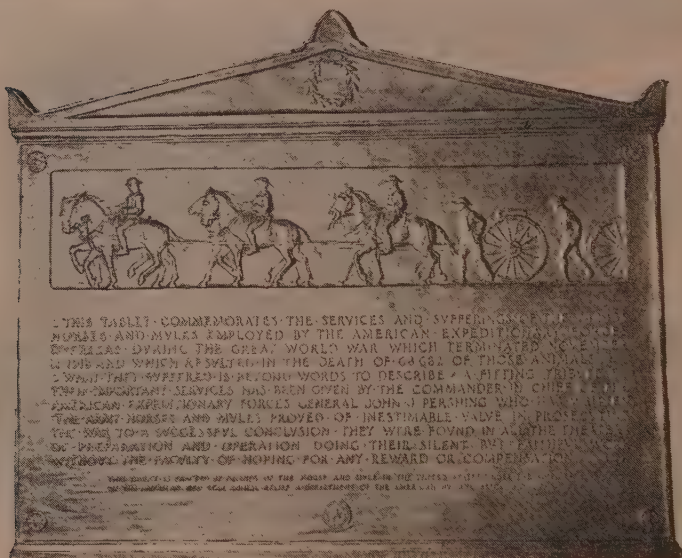
"While more than 68,000 of them serving with our armies in the World War passed to the Great Beyond in silent agony, and while many of them now sleep on the gentle slopes made beautiful by poppies' bloom, no white crosses, row on row, mark their last resting places.

"It is fitting and proper that praise and honor should be lavished on the armies of the victorious nations, yet in doing so we should not forget to render the meed of praise due the hundreds of thousands of horses and mules that died nobly in the cause of humanity.

"It is, therefore, with great pleasure and with deep appreciation that I now, in the name of the Government of the United States, accept this beautiful tablet presented by the Red Star Animal Relief in commemoration of the horses and mules that died in the World War.

"This imperishable bronze will ever bear silent wit-

ness of the great debt we owe our equine friends, and will inspire in the hearts of the present and future generations a determination to see that they receive the fair treatment and consideration which is their due."



RELIEF ERECTED BY FRIENDS OF THE HORSE AND MULE IN THE UNITED STATES UNDER THE AUSPICES OF THE RED STAR ANIMAL RELIEF—A DEPARTMENT OF THE AMERICAN HUMANE ASSOCIATION.

MAN'S ANIMAL ALLIES

FROM the first, was strife. Man, emerging from the welter, fought his slow upward way. He was encompassed by danger: his life was the stake for which he forever fought. He fought beasts; he fought other men. When two men discovered a common interest, then was formed the nucleus of the tribe, the clan, the nation. When they fought common foes, their operations foreshadowed battles and wars.

Man was of inferior physique, and was so built that he could not use his strength to full advantage; so he cast about for help. There was the animal that strangely seemed to bear him no ill will, that followed him in the chase and hung around his camps for food. It was the one animal that sought his society. So the dog came under control. He met man more than half way; his domestication was brought about through companionship rather than through subjection. And he stood guard while his master slept, thus establishing himself in the rôle of loyal watchman. His immediate use lay in the protection he gave.

Then man turned to advantage the speed of the dog. No one knows how long before recorded history this was, but the oldest Egyptian monuments depict what appears to be the greyhound used in the chase. Fully as ancient is the testimony of herdsman regarding the loyal sheep dog. The dog of old, however, was the incorruptible guardian of property other than flocks and herds. In those early days fighting was the normal con-

dition of mankind, and brave indeed, and strong, must have been the dog who guarded his master's property and fought off his enemies. No wonder that he entered into the heart of man as the first friend and ally from the animal world.

Battles were hand-to-hand combats, with gunpowder yet to come. It was but a step to train dogs for attack as well as for defense. A warrior going into the fight was preceded by a slave leading a fierce dog which, at command, attacked the enemy. Then the master would rush in with his club, or knife, and the enemy, doubly engaged, would shortly become negligible, and the warrior could march on to his next victory. These were genuine "dogs of war," and Shakespeare's reference is by no means empty of gory significance.

But no man, tribe, or nation, had a monopoly of dogs. The Roman empire builders sent fighting dogs along with their legions, and they found them used quite as efficiently by the peoples with whom they fought. Strabo says that in Gaul the Romans went against dogs clad in armor. The Teutonic tribes used complete armor, head-piece and all, for their dogs. Specimens of it may be gazed at in museums today.

The Spaniards made liberal use of dogs in their conquest of the Americas. They favored a breed of large mastiffs of a ferocity that matched their size. Some of these dogs were so efficient that they received salaries, which their masters drew for them. They were on the regular payroll. But the most murderous and savage pack of all canine conquerors was that brought from Spain by one Federmann, a German who followed Charles V to the Peninsula. These dog-warriors wore coverlets quilted with cotton to fend off the poisoned arrows of the natives. They were used in the subjugation

tion of the Chibchas, in what is now Colombia, and were more feared than a regiment of harquebusiers.

Man soon learned the value of the dog's power of scent in the hunt, but failed utterly to carry it further. Camerarius relates what seemed to be an instance of marvellous intelligence when guard dogs distinguished between Christians and Turks. We would not be surprised by it today. Differing modes of living and of eating produce distinctive scents in people. Races differ in scent; so do communities. The dog's nose is a gift surpassing human intelligence; it never leads him astray.

But, as time went on, the scenting power began to be utilized, and at first it was employed against outlaw raiders. Bloodhounds were produced. In England bloodhound evidence sent poachers to penal servitude. In this country, before the Civil War, bloodhounds were used to track runaway slaves. Their use today is world-wide; they are everywhere relied on to run down wanted men. But the savage traits have been bred out of the hound of today. He concentrates all his powers on running the quarry to earth and shows no desire to injure him. In this aspect he is a valuable enforcer of law, doing his part to sustain the civilization that he helped to build.

Napoleon believed in dogs and used them. To Marmont his order was: "Collect all the savage dogs you can, and picket them down outside the ramparts to give warning of attack." In the Crimean war the Russians used them with their sentries. The French maintained a system of sentry dogs in their colonies in Africa, in Cochin China, and in Madagascar.

How many valuable lives might have been saved had we made an intelligent use of dogs with our sentries in the Philippines!

About the year 1900 interest in military dogs revived, and several European nations took up the study of dog service in their armies. Germany lead the way, and German police dogs transferred to the military service gave good account of themselves. The Great War brought the messenger dog to the fore, and three distinct classes of dogs, requiring three distinct systems of training, came to be recognized. The guard dog was incorruptible; the police dog dependable; the messenger dog reliable. The human watchman might be bought; not so the dog. The soldier sentinel might fall asleep; never the dog. The battlefield runner might fail for many reasons and yet live; but the dog, to his last breath, would follow the line of duty. The dog is the only animal to take over man's duties, and he does them in a better-than-man way.

Of all the animals that have come into the service of mankind, the dog is preëminent in intelligence. But that is not all: he is more than intelligent, for he is inspired by the love that merges into deathless devotion. He is more than burden-bearer, more than toy, more than companion; he fills posts of human responsibility, his integrity is unassailable, his loyalty supreme.

"The more I see of men," said Frederick the Great, "the better I like dogs." And today there are those who hold that, in accepting the company of man, the dog condescended to a *mésalliance*.

But man was aggressive; his forays covered an ever widening area and he needed more than the dog. He needed mobility. Herds of small, shaggy beasts, wild horses, roamed wood and wold, and Neolithic man spent much time in their chase. An occasional live capture resulted in partial subjection of the animal. He was

"broken" to man's use. He could bear a man on his back, and, when inventive genius produced the wheel and axle, the war chariot was but a step away. Before recorded history begins, the horse was definitely aligned with man and dog for the great march up the civilizing centuries. For man had now won definite superiority over the rest of creation, and his future was for time to determine.

When history opens, the Libyans were good horsemen, and the Egyptians were using chariots. Nations that made use of the horse held the whip hand over their backward brethren. They were the warring nations, the ones that urged civilization forward. The horse was their ace; he was bred for war; he symbolized sovereignty in an age when warfare was the world's ordinary condition.

It was the fighters that recognized the asset of mobility, to supplement strength and stature, who first organized cavalry. The ancient writings of the Bible teem with references to the might of the war horse. Solomon's cavalry remounts numbered 12,000. Ezekiel alludes to the Assyrian cavalry, "captains and rulers clothed most gorgeously, horsemen riding upon horses." Twenty centuries later the imagination of Lord Byron was stirred by the vision of those Assyrian cohorts, "gleaming with purple and gold."

From Asia and Egypt the use of the horse spread rapidly throughout Europe. Nations seeking the advantage over others took thought to his breeding, increasing his size, speed, power. Curiously, the Greeks lagged in the matter of employing cavalry, and though they made good use of the war chariot, their horsemanship developed slowly. The sixth century, B.C., was passing before the Grecian cities owned formidable cavalry, but

even then it was not developed as an offensive weapon. As the sceptre of power passed westward to Rome, the chariot was still preferred. But the Romans improved the horse, and at Cannae they learned something about cavalry from Hannibal. When Caesar invaded Britain he had become converted to cavalry, though he found occasion to praise the skill with which the Britons handled their war chariots.

Early use of cavalry was limited by the difficulty of arming and shielding the horsemen. Later, on the hard Roman roads, there was trouble because the unshod horses went lame. Permanent roads antedated the horse-shoe, which was not invented until about the fourth century of our era. It was time, for the day of the mailed knight was dawning; ponderous horses were being bred to carry the great weight, and good foot protection was essential. Then came gunpowder. Armor was relegated to museums, and the period of mobile forces was fairly opened, with cavalry the notable arm. Cromwell's Ironsides set the pace, the most powerful cavalry yet seen in England. They did not wear armor, they were mounted on light, active horses, and their mobility spread a dismay that surprised the Cromwellians themselves as much as it did the enemy.

The horse came but slowly into the possession of the common people. He was a luxury-animal for the pleasure of the higher classes in the hunt, or a war-animal for the king's service. Agriculture was the last use to which he was put. An old law in Wales forbade the use of horses in ploughing; and Henry VIII's act "for the breed of horses" stressed the "generation and breed of good and strong horses" as a great defense of the realm.

The association of the horse with size and strength led to the use of the word "horse" in conjunction with

other words to denote the possession of those qualities. Thus we speak of "horse"-radish, "horse" mint, "horse" nettle. "Horse" power is still the term for the measure of mechanical energy. To attribute "horse sense" to a person is not entirely complimentary, indicating as it does the possession of rough commonsense, or instinct, rather than of fine reasoning powers. Nor in this is the horse maligned, for, so far as his mental powers go, he has been but little improved through his long tutelage under man. He does not develop that depth of affection that endears the dog to us; on neither the rational nor the emotional side of his nature can much be said, but his inherited courage has always commended him to courageous man. As for his physical form, we mould it to suit our varied needs.

In the opinion of many, a definite limit to the future use of the horse in agriculture has been set by the introduction of tractors and the development of wide-area farming. This may be the case, and the census reveals a decided and steady decrease in the number of horses used on farms in the United States during the past ten years,* yet it is doubtful if the horse will ever be entirely displaced. Be that as it may, however, he was, first and foremost, a war horse, and the motor and the tractor have only pushed him further into the fight. Tried out in the very pit of modern war's fiery furnace, he is still a creature of boundless courage. He proves himself invaluable, and resumes his ancient function as a glorious ally in the making and the upholding of the kingdoms of the world.

*About 18,000 horses were used on farms in 1924 as compared with about 21,000 in 1915.

The ass and the mule, humble kinsmen of the horse, came into man's life on the inferior plane to which their natures entitled them. They were docile, they yielded their strength to his control. From earliest ages they have been burden bearers, and as such have played their necessary but ignoble parts in all the wars man has waged. Even the little donkey, small and slow, has his share in the unseen work that rears the edifice of the years. Especially in rugged regions where pack animals are necessary does he come into view as the warrior's worthy ally; for he bears a burden out of all proportion to his size, he is sure footed, he is a stranger to hysterical stampedes, and he will live comfortably by browsing where the horse would soon become a hospital subject.

The camel is the most curious of the burden bearers man has impressed into service. He is the descendant of an ancient line, bringing into this modern day the characteristics that were his four thousand years ago, and more. Physically, he is well adapted to serve man in hot countries; he is built for the desert; and he has served well. He has been many animals in one; he has furnished strength for burdens, speed for journeys, hair for clothing, flesh for food. Small wonder that man has found this all-round servitor useful in war.

But his use is limited to lands where he has a natural habitat; he has no physical adaptibility, like the horse, and his mentality is rudimentary. Unlike the horse, he has never endeared himself to man. He seems incapable of affection; it is sometimes said that a good natured camel is unknown. Sir F. Palgrave summed him up: "He is an undomesticated and savage animal rendered serviceable by stupidity alone. Neither attachment, nor even habit, impresses him; never tame, though not wide-awake enough to be exactly wild."

The camel ranks as one of the most serviceable of the animals which man has won from the wild, but he protests his every service even while he submits. As to this dullest and least improvable of all man's lowly servers, Shaler's description is final: "This animal belongs in an ancient and lowly type of mammals characterized by relatively small brains and therefore of weak intelligence; but for its singular serviceableness in drought-ridden countries it would probably have been hunted off the earth by the early men, as have been many other remnants of the ancient life."

Elephants added the majesty of their bulk to the pomp of war in early days. Before gunpowder was known, elephants carrying archers and javelin throwers on their backs were thought to be irresistible in a charge. Horses became panic-stricken before them. Against the unsteady ranks of Oriental armies they were often efficient in breaking a line of battle and at first they proved formidable even to the all-conquering Romans. But when it was found that stout resistance to their onset was likely to throw them into confusion, in which they did as much damage to friends as to foes, elephants lost prestige. Gunpowder changed war entirely and relegated them to the ranks of peace servants.

The pigeon could have had no special value to man until civilization took definite form. The usefulness of the pigeon is based on its strong instinctive desire to return to its home. This suggested to man a way to send messages with speed. But civilization must have reached a point where communication with other men was desirable; man must have had permanent dwellings for himself; the art of writing must have been discovered. So the pigeon is a late comer in the list of

man's allies, but he serves with great efficiency and bravery in both peace and war.

Men were sending each other messages by pigeon post as far back as the days of Solomon. The art of training the birds was developed by the early Persians, and it is probable that the Greeks drew on that source for their news. Their various cities received the names of winners in the Olympic games by bird messengers. The Romans learned from the Greeks, and began to use pigeons as message-carriers about 120 B. C. That the birds did their duty well may be inferred from the fact that they were continued in use; three-quarters of a century later Caesar was employing them as military messengers and the value of the homing pigeon in war was established. When *Mollena* was besieged by Mark Antony, 44 B. C., Decimus Brutus, shut up in the city, frequently communicated with Consul Hirtius by means of pigeons.

The Crusaders used them in their campaigns to recover the Holy Sepulchre from the Saracens. In the fourteenth century pigeons formed part of a telegraph system adopted by the Turks. High towers were erected at intervals of thirty or forty miles. These were provided with pigeons, and sentinels were continually on the watch to secure messages from arriving birds, and to forward them by fresh bearers. These communications were written on thin paper and enclosed in a box of gold beaten to paper thinness itself. It was suspended from the neck of the bird. The time of arrival and of departure at each tower was noted, and, to increase security, duplicate messages were dispatched a couple of hours after the original. Sometimes, instead of the elaborate enclosure in golden containers, messages were simply wrapped in paper. Moisture was apt to render

such messages illegible, so the correct deportment of the winged messengers was secured by bathing the birds' legs in vinegar just before flying. This was expected to keep them cool on the trip, and reduce their desire for drinking, or bathing.

After this pigeons fell into disuse, though the art of flying them was not lost. Early in the nineteenth century the Dutch government established a military pigeon service in Java and Sumatra, obtaining their birds from Turkish sources. As recently as the invention of the telegraph the sending of messages by pigeons had a limited vogue among stockbrokers and financiers.

The siege of Paris by the Germans in 1870-71 revived the practice. The French were completely isolated. They tried to send out messages by means of balloons, but there was no certainty that these fragile and unguided bearers would come to earth beyond the enemy's lines. Pigeons were a last resort, and the birds flew daily to Tours where messages from London were received.

These messages were at first sent on thin waxed paper; but this did not prove satisfactory, as the paper was sometimes pecked by the birds, or cut by the string, or wet through inadequate waxing. This resulted in the use of quills as containers. Holes were burned through the ends of the quill with a white-hot bodkin, strings passed through the holes, and the quill tied longitudinally to a tail feather. This method gave satisfactory security.

The amount of information one bird could carry was astounding. At first the despatches were photographed on a reduced scale on the waxed paper, but later thin films of collodion were substituted for paper. The despatch was first printed in ordinary type on a folio page, then micro-photographed on the collodion on a scale of

one five-hundredth. Each collodion pellicle measured less than 1x2 inches, and each carried the reproduction of sixteen folio pages, sometimes including as many as 3,000 messages. The pellicles were so light that eighteen could easily be carried by a bird. This meant about 50,000 messages, if need be, to the single carrier. During the four months of the siege more than 150,000 official, and a million private, messages were sent.

When a pigeon arrived the quill was detached from his tail feathers, the pellicles taken out, flattened, and enlarged on a screen by means of an electric lantern. Clerks copied the messages, which were then forwarded to their destinations. After a time, sensitized paper was substituted for the screen, so that the messages could be directly printed and distributed.

Since then the military use of pigeons has been generally revived, and the birds are now admittedly on a par with other necessary features of military equipment.

When we plume ourselves upon the accomplishments of man, we shall do well to pause in our self-gratulation to reflect upon the magnitude of the services rendered by our Animal Allies. Can one imagine man deprived of his comrades and helpers, the dog and the horse, on the long weary march down blood-drenched centuries? And what could have supplied the place of his faithful burden-bearers, the ass, the mule, and the camel? Could man have attained to his high position had he lacked the support of these strong, loyal, and courageous friends and servants? Answer these questions as you will, you will have to concede that the side without animal allies in the Great War would have been the side doomed to go down in defeat.

Twenty-five hundred years ago Æsop taught in fable

the lesson of cooperation. It is the great lesson of the twentieth century. Commerce has learnt it, in part, but statesmen and peoples are still struggling blindly, for they have not learned it. Yet through all recorded time we have been teaching the lesson to the animals we have tamed and trained. The debt we owe them for their cooperation is incalculable; yet it is as dimly recognized as is our duty towards these, our little brothers and sisters of a lower creation. Our debt is something that can only in a measure be set down; our duty towards them should be part of our religion. To the fine nature gratitude and kindness are as divine command. We fail and fail, but ever we are reaching out to better things, to a future when justice and kindness to the animal creation will be part of man's conduct and of his very nature.



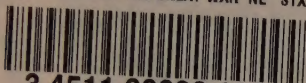
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